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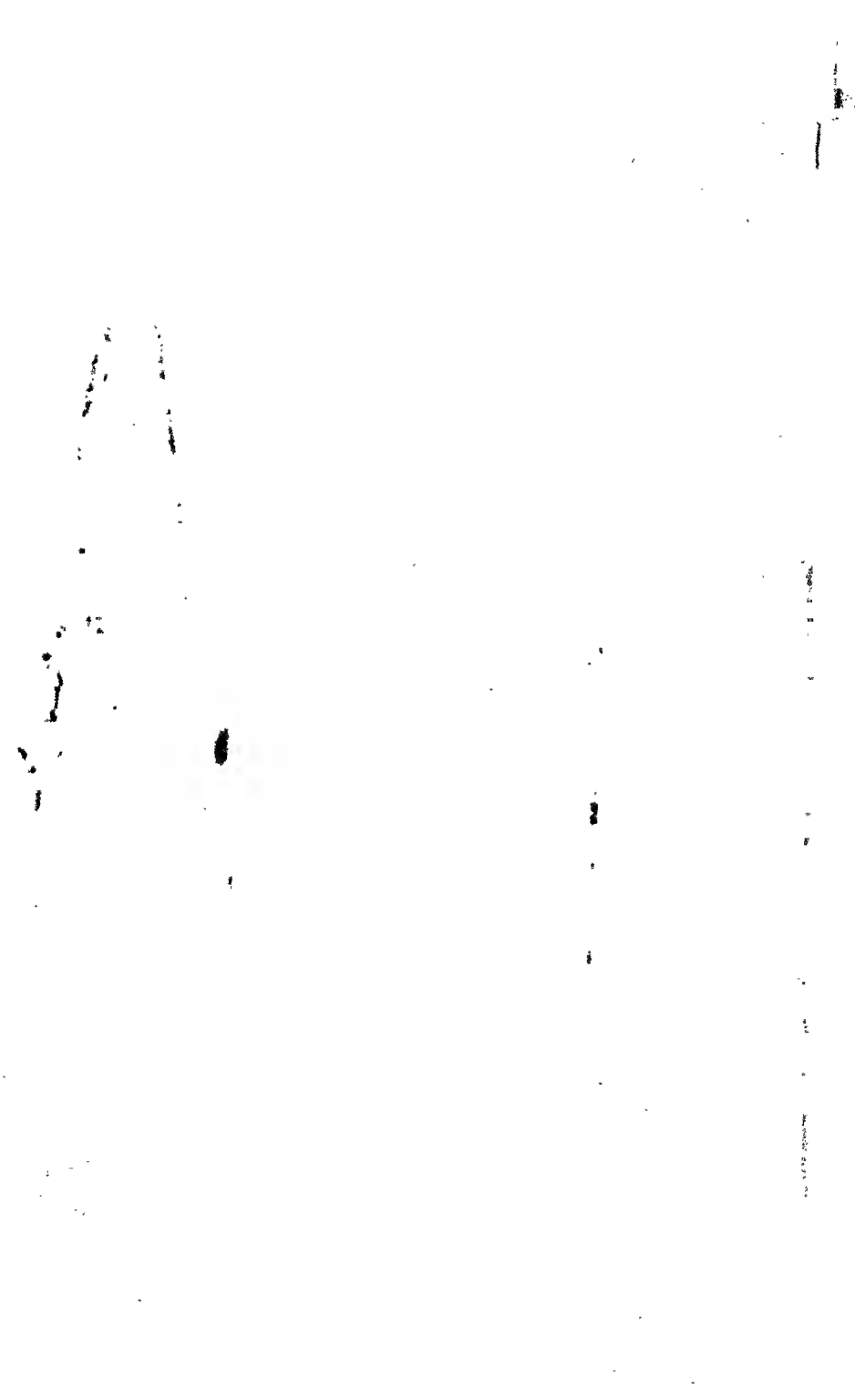
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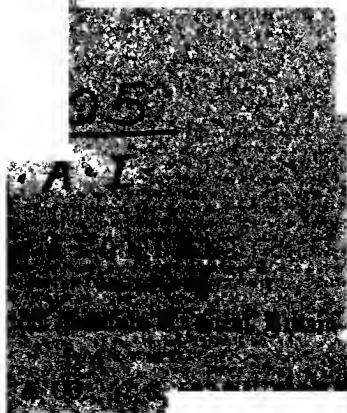
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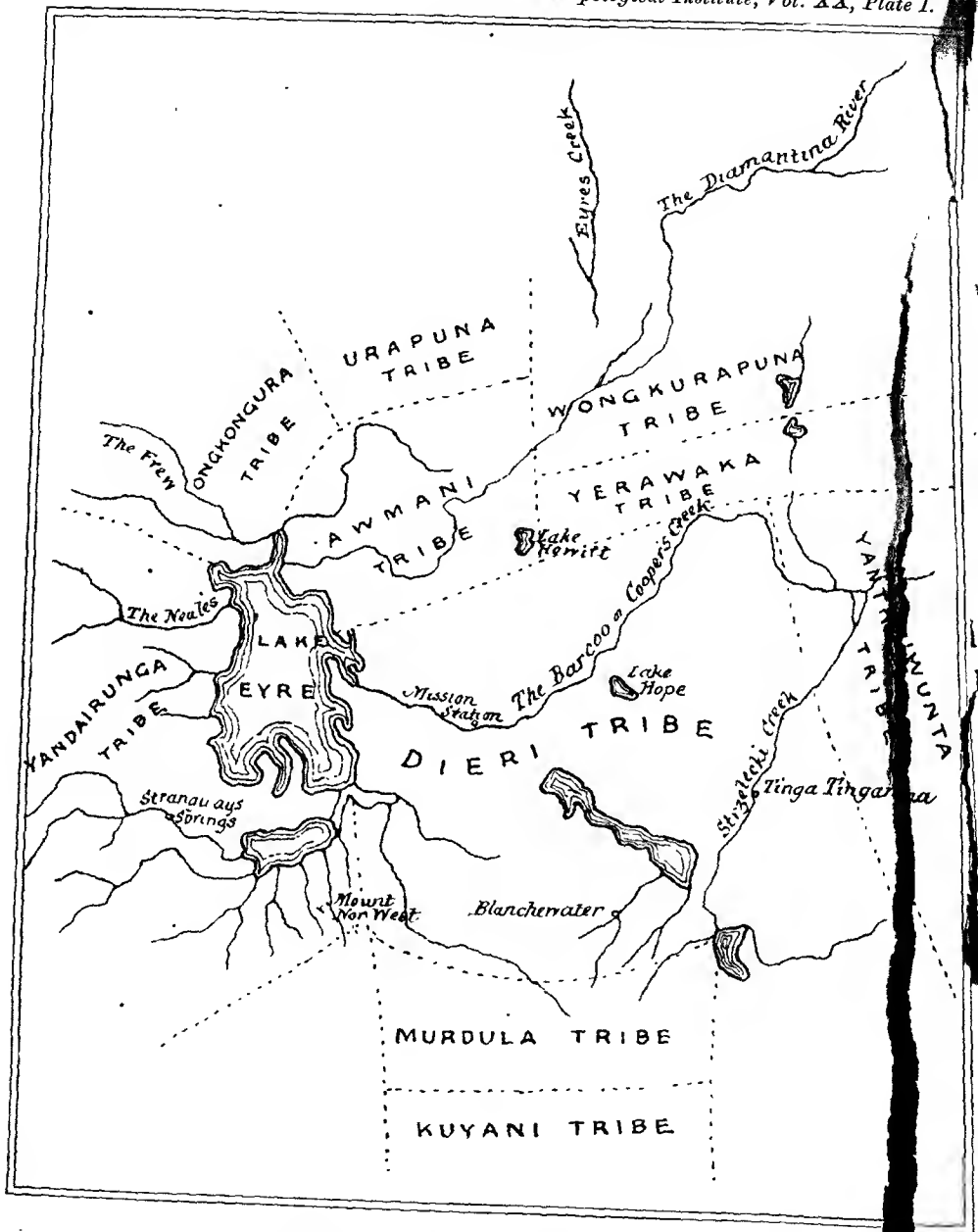






1. The first part of the document is a list of names and titles.

2.



SKETCH-MAP OF PART OF CENTRAL AUSTRALIA,
shewing approximately the Geographical Distribution of
THE DIERI AND KINDRED TRIBES
described in Mr. A. W. HOWITT'S Paper.

THE JOURNAL
OF THE
ARCHEOLOGICAL INSTITUTE
OF
BRITAIN AND IRELAND.

FEBRUARY 11TH, 1890.

MR. J. H. MASON, Esq., M.D., *Vice-President*, at the Ch
utes of the last meeting were read and signed.
ments were announced, and thanks vot
ed.—

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SOCIETY OF PARIS.—La S
nthropologie de Paris

JOHN SURVEY.—Mont
Archæology of Ohio

ED. LUCAS.—Archæology
the Antiquarian Com
389

Annual Report of the Curator
Comparative Zoology at Harvard Coll

The New Heck Excavation at ...

P.S. P.O.S. ...
and Songs. ...

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Royal Historical & Archaeological Society, No. 80.
 Proceedings of the Cambridge Antiquary Society.
 Journal of the College of Science, Vol. iii, Part 3.
 Proceedings of the Society of the Royal Geographical Society.
 of the Royal Society, Nos. 284-285.
 of the Asiatic Society of Bengal, 1871.
 the Asiatic Society of Bengal, Vol. 1.
 number on "The Modern Vernacular Literature of India."
 By George A. Grierson, B.A., B.C.S.
 Society of Arts, Nos. 1934-1942.
 of the Philosophical Society of Göttingen.
 Société Impériale des Naturalistes.
 Sociedade de Geographia de Lisboa.
 ungen der Anthropologischen Gesellschaft.
 Heft 3, 4.
 Societății Științifice și Literare din Iași.

Journal of Mental Science. No. 1050-1058.

Nos. 354-364.

Revue, Tom. xlii, Nos. 24-26.

Paletnologia Italiana. Tom. v.

Paper was read by the Author.

SHREVEALE OF THE CLIMATE

By T. W. SHORE, F.R.S.

of the successive waves of culture
 the southern parts of England and
 called Hampshire was inhabited
 of these people, perhaps there is
 distinctly trace, with the
 can be recognized in the
 the Saxon

most of tin has been di
by. The ancient use of
articles of bronze must l

ed at Southampton,
of "the tin shore,"

15th century. As
d again, at a port
and Devon, if it ha
a continuous trade, a
the time of the Venet
in at Southampton.

the Celts of Ham
and manufactured o
s produced in the mariti
ity of it is small. I have
manufacture of iron was ca
sites of some of the old iron
ll as in Sussex and Kent. The ch
s derived from the beds of the Br
nodules.

VAR
fac
ed
ary

the first among the
few of the other
his country we are
the of Champagne
servant of them all.
ption there is a trace of
here Romano-British red
the coun

symbol of
cannot be thought imp
ly have also intended certain o
survived to our own day to
This was, I think, the case in a
ey selected for the tumuli, which the
their dead. I have enumerated me
nch still exist in Hampshire. Tacitus re
reared no monuments to their dead, that
and sacrificed horses at funerals.
ared no stone monuments, and the
round of earth as a monument, the
the existing remains. Horses be
on the Celtic burial sites of Ham
that they were sacrificed, and
the same people in this coun
nation. In two instances, burial place
filled with cremated matter have been
tumuli, to mark the places, at the time
one discovered many years ago near Hyd
in 1888 at Dummer, near Basingstoke.
of bronze, or worked flints of
these burial sites. The ex
id similar to those on Sal
shire, described b
of interment in H
but the preservatio

two or three feet
earth. This was the mode of in
which six thousand years were some
seeds were so large that they app
used for domestic purposes.

That these small barrows
are by no means higher up the
hill, owing to the great
erosion of the forest land, must have
at springs, but there must
be sources higher up the valley
in very wet seasons. So

once in ten, or in as
unmarked instances the
Hampshire were chosen
and as burial sites. This is the
case with Whitchurch and Newbury.
When you may pass through the
these barrows, and see that the
soil is quite dry, but occasionally
a little torrent, and its
the Seven Barrows. It
is remarkable burial site
I have had no reference to
it. The higher chalk area
which is the collecting area
ings in very wet seasons, is of
course must have kept it an open downslope
on a recent day, for it is part of
the district, as early as An
clude that the
close to the
of Hampshire

...the
Seven Barrows
is a group
of Stone
single barrows
known as
the Seven Barrows

at the head of the

INTERNATIONAL POL. REL. 2014-2015

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intervals, which have the
same name, or quite a
few is one of the best
of them, and in that

the range of hills
some of the

in some instances
he tertiary formations, some
are wells, but in the dry
after long intervals, or
wet seasons. Some of the
thing wells, and the wis
think have had the

me is more or less the
Maplode well, springs rise to
lace-names are partly Celtic,
partly had a reputed curative property,
shire is situated close to the old of
am at Holybourne, near Alton, rises

me to be instances in which
Celtic reverence for water
and the Celtic water

name of the
well is
name
people of
the name
have proved
they, Orest

and
well, Amph
sandy Hanton
ancient name

we have exa

Arthur survive at Winchester
in the County Hall
which must have taken place
seen the cause of many of the
certain parts of the religious
organization, and part of the law
s become mixed with and engrafted
by customs, communal organization
ons. In no other way can I account
characteristic of the Celts surviving until the
Celtic customs lingering until the middle
led to the May-day sunrise and the Stone
sunrise was certainly reverent
stian time as well as in pagan Celtic times
out 20° north of east is the line of orientation
of the oldest churches in Hampshire, and of
It is a common orientation among the old
shire, in which county there are as many
of it. I cannot explain this on the
survival of a reverence for the May-day
an time, to Saxon Christian time, and to
later date. It appears to me that as
of part of the Celtic people; it is
that traces of their May-day customs

course possible that in this common line of orientation
lurches, we may see all that remains of one of the
old British Christianity which existed before the
Saxons.

that we find two different
early inhabitants of Hampshire
different races of people
branches of the Celtic
words survive among
as a large number of
names as *ow*, a river
a pool or lake; *larrock*, a
Hampshire, and are common in
Dublin, which means a black
rt of the Test, and which place in Celtic
is character.

tions of Merlin and especially those connected
of Stonehenge, are much the same as the Irish
tions of Kildare, and of Stonehenge having been
Kildare. The Irish history of the same
of a

TO BE OPENED BY THE SECRETARY OF THE ARMY

OFFICE OF THE SECRETARY OF THE ARMY

Not than the Cynic

OFFICE OF THE SECRETARY OF THE ARMY

Admiral Trowlett, his
direction 36° north
of Kerlescan 26° north
formed three sides of a
bearing spoken of by Mr. Shi
observed in Brittany in old times

the following line:—"Eight fires
the month of May;" so that they had
rough confirmation of Mr. Shore's views.
is very much the same direction from the
Cumberland, and it was very likely that in m
ut hill-tops might be found in the line of May
in circles. This was a point to which he would
mention in any future visits to circles, and he
Shore for bringing it before the Institute.

Mr. Mr. ATKINSON, Mr. PARK HARRISON, I
also joined in the Discussion.

in reply to Mr. Holmes, said there were in Ham
which were old moot or court places such as
Southampton Common, and others still existed;
with mounds. These he thought were probabl
or defensive purposes by timber structures, as
Clarke and other writers on ancient military archi
is in Hampshire a place which at the
very was known as Timbreberie.

thor said that the findin
ow, might have been du
n a disc barrow or ring ba
a circular ditch and bank on
pebbles. These would be
ares, and many of them
The charcoal burners
lar form, and built large

It is a question of a quail, and it is a question of a quail.
In regard to the general question of whether
either they were the earliest people, or whether
there were traces of an earlier people, or whether
their dead in a sitting position, or whether
any, but very few

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ed from side to side the brain
and the cephalic index averaging
of the glabella, but more particu-
r excessively developed, while in the
derately marked. Most of these are
of the surface, and in this respect
which are remarkably smooth and
e there are four examples, namely, two
at Kew, and the Twickenham and the
these are marked respectively F, N, C
type intermediate in character, betw
is represented by the cranium marked C
it is a very fine example of a well-filled and fo-
size, rather more dolichocephalic than the av-
of the present day, the cephalic index being
y ridges and glabella are fairly developed but
the greatest elevation of the former is over
the orbit. This specimen is very nearly allic
ond type, and had the means of determining
ial characters of the latter been present, I
ed with them, with a remark that one is
ittle more brachycephalic than the others.
we got the facial portion preserved
we have to trust to the shape of the calvaria

er specimens those marked B, D and I respective
ie specimen marked K is also probably of fem-
very incomplete the sex cannot be determin-
The specimens B and G are complete ex-
in other in general appearance; their meas-
imilar; but B has somewhat more ma-
surfaces for the attachment of
it. The cephalic index of
r relation to the male spe-
he first type; the spec-
latter than the other fi-
imens in having the
l from above, remarka-
readth is attained at t
ther words, it is markedly

to female specimens, it will be noted
in the river at Kew.
ing notes regarding the character of each find
ed the table of measurements appended
a purpose of comparing these with
from the



moderate; n of cranium, the prominent; nose small

of adult female. Supereiliary ridge moderately developed; forehead is notopic; cranial arch broad from sides for muscular insertions fairly moderate in size; not much worn.

ter at Kew.

tion of adult female. The muscular ridges developed; frontal region not so broad. Previous specimen, and the face is shorter from downwards. From the river at Kew.

fect calvaria. From the river at Kew.

fect calvaria of remarkable shape, very broad anterior parietal region, narrow in front, with absolute lateral walls, which diverge regularly from region to the parietal bosses; afterward rapidly. Occipital region and base

is smooth, ridges for muscular insertion arch of the cranial vault is remarkably

d. Probably female. From the river at K. Perfect calvaria of young person. Oval in pointed at frontal and occipital ends. From the river at Ammersmith.

cult to determine with any degree of certainty

rich these specimens belonged, on account

up from a river bed. The evidence which

coming to a conclusion as to the approximate

years inhabited the country

first the evidence affords

d. with those objects

acts of art or nature

d. thirdly, the evidence

in which they

be imperfectly

indicate that they are

whose remains are found

associated in earliest times with

who appear to have been the inhabitants

very anterior to the advent of the brachy

race usually associated with the Bronze pe

riations which have been hitherto made re

veal characters of this delicate

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more than one. The two distinct
these specimens is therefore an inter-
and may prove very important in connecti-
ons. Although belonging to the earliest
his country, it does not follow --

that these specimens belong to the neolit-
the neolithic races lived during the Bronze p-
fore it, and even during Roman times, but
during later times was more restricted or be-
laries occupied by the new-comers, as is usual
a conquered race. The absence of brachye-
at the specimens before us as well as
and in the district which would be first occup-
hycephalic race coming in from the east or south
indicate that probably they belong to an
the invasion of the country by the Bronze age

ments which have been found in the same stratum
in which these specimens were obtained, I understand
Lawrence, are of stone, bone, and bronze, but
were found with the specimens.

ical stratum in which the specimens were obtain-
ed by Mr. Lawrence, who will tell you they were
the stratum immediately above the London clay
formation regarding the geological formation of it
which throws light on this subject, is contained
in a paper by Mr. F. C. J. Spurrell, F.G.S., ...
of the Geologists' Association," Vol. xi, No.
point bearing upon the antiquity of the specimens.
The fact that between the stratum in which they
some of the strata above it, are hard com-
pacted and required some force to break through, the
lightness of the specimens having reached the
surface at a subsequent period during the
recent strata.

aches to these skulls from the
to be able to announce that
present them to the Natural History
where they will be preserved

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first mentioned, as from No. 5, were
of them had a quantity of the same
when found.

sked G was found in Lion Reach
Wickenham; but I have been unable
information as to the strata there.

en that the skulls I can trace have all come
of the river bed, that lying upon the
it to more experienced geologists to see
the skulls may be, merely adding that
ne, and bronze have been found in this str
antiquities of iron seem only to occur

FEBRUARY 25TH, 1890.

MR. ESQ., D.C.L., F.R.S., *Vice-President*
the Chair.

Hon. J. W. POWELL, Director
huology, Washington, U.S.A., as an Hon

g presents were announced, and thanks vot
honors:—

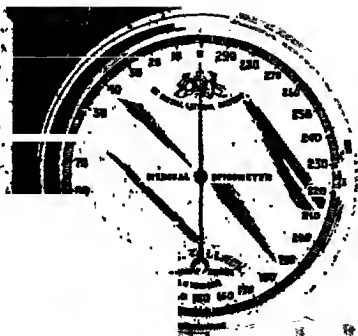
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NEW SOUTH WALES.—
nos, for the year 1888
The Nanga of Viti
With Note by Bar
PHELIANS, EDINBURGH

VERBODEN VAN KUNSTEN
voor Indische Taal, Land

aan. Aftelvering 3 en 4.
en van de Algemeene en Bestuurs Vergader
Aftelvering 3.
Indisch-Indi Pluknaden 103-1013.

In another form of spirometer in which
 air moves light fans in air, it is found to be impos-
 sible to avoid friction caused by corrosion and from leaks
 at equal rates. The instrument before
 described is constructed upon a principle common to the
 others, but in this case the measurements being
 made need no apparatus for continuous
 registration, nor solidity of parts for rough handling.
 The apparatus is made much lighter and of more di-
 versity of action. It consists, as in the gas meter, of a
 horizontal wheel, with cup fans, revolving nearly under water.
 Air is projected into one side of the fan while
 it rises immediately by the minus gravity of the air
 in the surrounding water, and the air escapes at the sur-
 face. Meantime another fan comes to position to receive
 the quantity of expired air, and so on continuously so long
 as the subject expires breath at a pressure beyond the small resis-
 tance of the apparatus,



The registration mechanism consists of a light train of
 wheels and a single balanced hand, which indicates
 the quantity of cubic inches on a dial. The hand stops and re-
 turns to its initial position when the expired air has no longer any
 effect upon the mechanism. The registration is upon a
 scale which is not more than that of

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lines of inquiry which had not presented the information which Mr. Gason has kindly and leniently taken from his pamphlet on the elements of his have this special value, that infirmed during the years which have
Therefore I have let them meet part of my own, but I have bracketed the reader.

are due in the first place to Mr. S. Gason, who drew attention which he gave to my numbers. Then to the Revs. H. Vogelsang, C. A., of the Lutheran Mission, to the Dieri; to Mr. V. formerly of Mount Howitt Station, and to Mr. H. formerly of Strangways Springs, who have given assistance in procuring the necessary information referred to.

§ 2. The Geographical Range of the Tribes.

Those herein considered occupy a tract of country in Australia which is not less than 300 miles long from east and west—that is to say, the whole of the country is occupied by tribes which either recognize each other in stock, which is exhibited in their custom, or where that relationship is not ascertained by my informants, or has not been ascertained by my informants, or from the community of custom. The Kunandaburi tribe of the Queensland boundary, is separated from the easterly one of the group by a line of this tribe show clearly that they do not exhibit themselves in the other group of custom must be explained. How far to the west the peculiar social customs exist, I cannot say. I can only say that the type I cannot say. Investigation, perhaps even for the present it must be the social organization which is described in this

under great obligations to the Surveyor-General of Queensland for having furnished me with a map showing the position of the Kunandaburi tribe in the Kunandaburi country. The position is at lat. 26° 30' S. long.

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Mount Serle in South Australia and I could understand each other by means of the Yantruwunta I used. The range of the two-class names Ka points to a very wide extent of country cov-

bes as shown on the map are as follows:—

Dieri, which occupies a tract of country on the eastern sides of Lake Eyre. These people have superiority over their neighbours, frequently speaking of their children and of themselves as the fathers of the surrounding tribes also acknowledge the superiority of *Dieri*, and I can confirm this statement of Mr. Gason's own observation, that two tribes with which I had communication during my explorations, namely *Yantruwunta* and the *Yerawanka*, always spoke of the *Dieri* with respectful dread. Mr. Gason says that during his journey in the country of the surrounding tribes he was frequently asked what the *Dieri* were doing, and whether they were forming a league while the *Dieri* did not exhibit this curiosity of them; only enquiring from him as to the state of the rainfall, and such matters.

Aramani lived on the north-east side of Lake Eyre. *Yerawanka* lived on Cooper's Creek and to the north of it.

Yantruwunta (*Yandrawontha* as written by Mr. Gason) lived on Cooper's Creek and from some distance to the east of the inland boundary down to the *Dieri* boundary. It was with which John King, the survivor of the Burke expedition, was found by the party under my command. One of its hordes, namely, that at *Kalimarti*, was in constant friendly relations for some nine years with my depot there.

Wurupana lived between the *Diaman* and the north of the *Yerawanka* to the northward of the *Wero*—

It occupied the country to the north of the *Neale* and *Frow* Rivers.

It extended the country to the south of the *Wero* spoken of by the settlers as the hill trail to the high mountains which end near to *F*

Kuyani lived south of the *Murdala*.

Pentairunga occupied the country extending to the shores of Lake Eyre for about 140 miles.

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and the best that could have been taken of it

division has a representative group of totipotents of the community are not in the Australian sense, in very exceptional cases, aggregated in it. They then become "local clans" through the male line. With such communities as are mentioned in this paper.

These organizations are co-existent and contemporaneous so far as their entities, but not so as regards the local divisions respectively; for the two organizations interpenetrate each other.

The horde has been proposed for the subdivisions of organization, where descent is counted in the community through the mother, while the well known term clan is applied to the divisions of those tribes in which descent is counted through the father. This distinction is very important, since the word *clan* has been used so loosely in regard to Australian tribes and to their local and even their social divisions by some writers, as to have caused unnecessary confusion of thought.

The Local Organization of the Dieri as an example of *mutatis mutandis*, is applicable to all the tribes that are distributed through the tribal country in five great localities, as follows:—

Hope.

West of Lake Hope.

Kopperamana.

Mouth of the Barcoo River (Coppin).

Eyre.

Water.

Divided into two principal divisions.

It seems from Mr. H.

Yandarranga applies all

that there while one part of it

is Thimungara as well

If Australian tribes is now
it has been so fully illustrated in many ways
that it is unnecessary for me to make any general
and I may content myself with referring to the

describing table of the Yarn River, Victoria
and the Yarn River. In the Yarn River

in the various

as in which

is referred to in this paper
that which I have elsewhere

That is to say, it divides
of which is represented by
ems.

the class divisions of the Dieri are
al country in the various local groups
represented by the children inheriting
totem name of their mother. The
archal.

ware of this many years back when I com-
menced to work out the Dieri customs. My in-
formation from the Lutheran missionaries at Lake Hope and
as to the descent of the "murda" names
also fell into line with the facts I had collected
it accorded with the status of many
reason to doubt their accuracy.
from Mr. J. G. Frazer in the "J
Institute" on the "Dieri"
elements by Mr. Gason, who there

Mr. J. G. Frazer
and Mr. J. G. Frazer
and Mr. J. G. Frazer

confirmed the broad statement that the children of the Dieri inherit the totems of their mothers. In order to have a direct instance, as a test I requested him to enquire of the deceased Headman, Jalina Piramurana, whom he has so frequently mentioned in his communications and who was the Headman at the time when I knew the Dieri tribe personally. I believed this man to have been of the Manyura (Portulacca) totem, but I know no more.

Mr. Flier's replies amounted to the following, and they were based upon the statements of the Dieri elders:—

The Dieri children, boys and girls, take the totem of their mothers. If a man of the Kintala (Dog) totem has a son, the Kokula (Rat) totem, all their children, both boys and girls, will be of the Kokula totem.

Jalina Piramurana was of the Manyura totem.

His father was of the Manyura totem, and his father was of the Kintala (Emu) totem.

It is therefore abundantly evident that the Dieri totems have a maternal descent, and that the tribe therefore makes an exception to the general rule.

Geertz's statements show that descent in the Yandairung tribe follows the same rule.

I regret that I am now unable to give more than three of the totems of tribes spoken of herein, but since they are those which mark the western and the eastern limits of these totems and also of the Dieri, which is the typical community, it may be taken as a reasonable assumption that similar class systems extend over the whole of the area referred to in this paper.

It is probable that the northern boundary of this system is somewhere about Birdville, on the Diamantina River. I have reason to believe a system framed on a similar type is found.

Southward the Kunandaburi tribe is not far distant, which have class systems of the Kamilaroi type, as do the two Dieri classes, Karara and Matarrunga.

We may conclude that the same system of classification extends so far. I have no information.

law systems of tribes in the desert country to the west of the Diamantina.

I have said these communities have two intermarrying class divisions, each having a numerous group.

I now give the systems of the Dieri, Yandairung and Kunandaburi tribes:—

Arara
Vargem
Baba
Opem
Bafala

Padi
Thimara
Panta
Mina
Kibori
Krapara
Makara

Bagle-h
Kona
Coring
Lomara
Ting

Chongalla
Native cat
A mouse
A rat
Dakara
Baba ka
Makara

Baba

YANDABURRI.

Kararu	{	Kutara	Eagle-hawk.
		Tantani	Cormorant.
		Kopri	Iguana.
		Kadni	A lizard.
		Mudla	Dog.
		Wadnamara	An insect.
		Wirdigi	The Mulga tree.
		Kirki	Night hawk.
Kararu	{	Kürdmiri	Bull-frog.
		Upala	Cloud.
		Wakalo	Crow.
		Arkaba	Red ochre.
		Thalka	A rat.
		Kokola	A wallaby.
		Waranati	Emu.
		Kürarü	Musk duck.
Kararu	{	Wanbura	A snake.

KUPANDABURI.

Matara	{	Kulbara	Emu.
		Kani	Frisled lizard.
		Wirijura	Kangaroo rat.
		Mürüthera	Opossum.
		Kokola	Bandicoot.
		Korinya	A small wallaby.
		Korimora	Brown snake.
		Kopula	Speckled brown snake.
Matara	{	Kuntara	Native companion.
		Taldra	Kangaroo.
		Turagürü	Iguana.
		Titi	Dog.
		Wogawochi	Crow.
		Kogunya	Blue crane.
		Warungani	Carpet snake.
		Orikomati	Frog.

ese systems there is one common class name, nat
 or in its Kupandaburi form, Matara; and I should fi
 to find on enquiry that in accordance with that w
 is elsewhere, Kararu would be recognized as the equiv
 ungo wherever two tribes are in contact of which one
 rmer and the latter name. The geographical ra
 is at least seven hundred miles from the Kupar
 ay to Port Lincoln, and it is certainly accompan
 its equivalent.

are not completely given
to agree upon them. The nat
tained with or perhaps it would
of recall all the totem names. It
now in some cases complete
plete extermination of tribes
country. An inspection
to suspect some inaccuracies
one class and in another list
in no case is this coincidence
is quite possible that this is
in through the native inform
ations. I have found this to be
in interview when giving me the name
ch they had least connection
own kindred had not married
andairunga call the totems
n. gaura. According to Mr. G
ne of the Diem systems are Wairaga
ways
Wairaga

as to a Kararu man. But while there is no such restriction of the intermarriage of certain totems only in the Dieri and Wandaburi tribes, there is some evidence that it obtained in the Yandairunga. As to the other tribes mentioned in this list, I have no evidence.

Hogarth has given me a list showing how the totems marry in the Yandairunga, which is as follows:—

	marries with	
1. Kuraru		Kuraru, Arkaba, and Waranati Wakalo.
2. Tantani	"	Thalka, Arkaba.
3. Kokala	"	Kokala.
4. Kuraru	"	Kokala.
5. Wambura	"	Kuraru.
6. Wambura	"	Wambura, Upala, Wakalo.
7. Warawati	"	Warawati.
8. Thalka	"	Thalka.
9. Wadnamura	"	Wadnamura.
10. Upala	"	Wadnamura, Kuraru.
11. Wakalo	"	Tantani, Kuraru.
12. Arkaba	"	Tantani, Kurumura.
13. Thalka	"	Hadui, Kapri.
14. Kokala	"	Kuraru, Wurdigi.
15. Warawati	"	Mulla, Kuraru.
16. Wadnamura	"	Wadnamura.

inspection of this table shows that it is imperfect, as Mr. Hogarth himself says. According to the ordinary even say the universal, rule, that sisters are exchanged as well, there should be reciprocity in the marriages. In the above list this is the case as to 2, 4, 6, 12, 13, 16, and therefore the chief is so far justified that it may be so in the other

This same principle of reciprocity would supply other cases which I have added in italics. There is also evidence that the totem marries only into a certain group of totems, for Mr. Hogarth says, "Kuraru claims as

to marry with the *murdus* Kuraru, Arkaba, and

then adds, "A man of the Kuraru totem

may all the women of these *murdus* as

is restricted, but in what manner is in

the section on "Marriage" it will be shown

as a man, though he is entitled by birthright

in any of the totems of the other class, cannot claim

even in them as his *Piraurus*.

is a strong feeling of fellowship between all the

and totem. On the arrival of a visitor at a camp

joined by his relatives, or in default of them

is. "Those of the same totem keep together, eat and

and lend each other their women. Even at a

distance of three or four hundred miles

1. The first question is "Mi murdu"

is set before myself, and I will leave it to anthropologists to assign a value to my results.

Before commencing the task of considering critically the Dieri system of relationship, I must premise that no two tribes which I have knowledge have precisely the same terms or the terms arranged with the same relative bearing.

These systems, when collected and compared with each other, form a series from the most simple system to that which is most complicated in its relations; and therefore most complicated form a progressive series; but the progression is not on all with the advanced status of the tribe. That is to say, it does not prove on examination that the most advanced system of relationships is used by the most socially advanced tribe.

General result is so, but cases occur where a tribe will be which has lost its class-system, which has only traces of sexual license of the Dieri, and which has individual marriage completely established with descent through the male but which yet uses a system of relationship which is of the simple and archaic type. It is not now my intention to say why this is, for to do so would carry me beyond my present purpose.

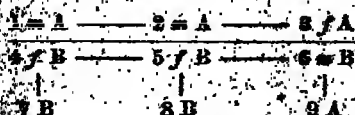
The subjoined tabulated statements of the Dieri relationship have been most carefully examined and checked by me, and have been finally referred to the correspondents by whose assistance they were compiled. These gentlemen have with most kindly patience submitted to a reiterated cross-examination which I fear must have severely tried them. So far as I say I believe the lists may be accepted as accurate, and as matters of accuracy is of the first importance. It was, I repeat, Charles Darwin who said that the effects of false facts are of but little moment, for every one feels a pleasure in putting them straight, but that false facts are more dangerous because there may be but few who can point out the error.

On the results obtained from four correspondents, it is found that they agree almost completely, and that in so far as the terms are synonymous.

In this section I propose to show how these terms fall into certain related groups, and also how one set can be forecast by an inspection of the others. I shall now offer any hypothesis to account for this, leaving it to be considered in the final section, as also such conclusions appear to justly arise as to the origin and development of the remarkable system of relationship which the Dieri have with all Australian tribes.

In considering these groups I have found it a great aid

sent a group of people who are in the necessary relation to each other by the subjoined diagram—



The explanation of this diagram is as follows:—The numbers, for shortness of reference; m = male, f = female, A = the first class, B = the other class. Nos. 1 and 2 represent two brothers, 3 represents their wives, 4 and 5 represent the wives of 1 and 2, and No. 6 represents a son in each case of the three. Nos. 7, 8, 9 represent the three couples may represent with the Dieri as among other tribes, namely the above groups are married to each other.

Thus all the relations shown in Table I represent either a group of brothers or

and when
the husband
for 3 and 4
and shows why

and the two relations of

		Vogelhang.	Meyer.	Ellerl.
F	Husband ..	Noa ..	Noa ..	Noa.
	Husband's brother ..	Noa waka ..	—	Noa waka or Yimari.
	Sister's husband ..	Noa waka ..	Yimari ..	Noa waka or Yimari.
	Accessory husband ..	Pimooroo ..	Nginyaru ..	Pimuru or Nginyaru.
	Wife ..	Noa ..	Noa ..	Noa.
	Wife's sister ..	Noa waka ..	Yimari ..	Noa waka or Yimari.
	Brother's wife ..	Noa waka ..	Kamari ..	Kamari.
	Accessory wife ..	Pimooroo ..	Pimanguru ..	Noa, P
M	Wife's brother ..	Kareti ..	Kadi ..	Kadi.
	Husband's sister ..	Kamari ..	Kamari ..	Kamari.

	Yelabang.	Meyer.	Mietl.
Father	Appiri	Aperi.. ..	Aperi.
Father's brother ..	Appiri	—	Aperi waka.
Mother's sister's husband ..	Appiri	Aperi waka ..	Aperi waka.
Mother's pirauru ..	—	—	Aperi waka.
Mother	Ngandri	Andri.. ..	Andri.
Mother's sister ..	Ngandri waka ..	—	Andri waka.
Father's brother's wife ..	Ngandri	Andri waka ..	Andri waka.
Father's pirauru ..	—	—	Andri waka.
Mother's brother ..	Kaka.. ..	Kaka.. ..	Kaka.
Father's sister's husband ..	Kaka.. ..	Kaka.. ..	Kaka.
Father's sister ..	Papa	Papa	'apa.
Father's sister's husband ..	Papa	Papa	Papa.

The first part of Table B represents a paternal group; the second part represents a maternal group; the latter represents two relationships which differ from either of the

Why is this? The diagram already used will be again of service in giving some reply. Let us take 7 as the individual to start from. 1 is his father, being Noa to 4, who is his mother. But we know that 2 also stands in the marital relation to 4, and is therefore father, but being, for instance, a "group" husband, is qualified by the affixed term *waka*. 2 is, however, also the "mother's sister's husband," and the "mother's sister's husband" being also evidently the same individual as the "father's brother," stands necessarily in the position of "group father" to 7, as well as to 8.

A further comparison of the diagram with the table will show why it is that the maternal relation indicates a group and not merely an individual. Nos. 4 and 5 are both wives of 1, and therefore both stand in the maternal relation to 7. Similar considerations show that 1, 2, 4, and 5 are in parental relations to 7 and 8.

It is further quite evident that 3, the "father's sister," being of the same class as 1, cannot possibly, under the Dieri system, stand in the marital relation to him, and therefore cannot stand in the maternal relation to his son 7, nor to 8, the son of 2. Neither can 6 stand in any such relation to 7 or 8. This relation is quite a different one, and has been distinguished in this system accordingly, by a distinct term.

It will suffice also to point out that the diagram shows why the mother's brother and the father's sister's husband are both called *kaka*. They are the same group, and receive therefore the same designation. The same can be seen to be the case as regards the father's sister, and the mother's brother's wife; the relations indicate 3.

Table C shows the reverse terms to those given in Table B. Arguments used as to the latter apply also *mutatis mutandis* to the present case. These relationships follow naturally from the former. Although the several informants have not completed their several lists, sufficient has been done individually and collectively to enable one to obtain with sufficient contrast a complete list.

The remarkable feature herein is in the last term given—which is used here in the sense of "son," and would, perhaps, indicate a survival of a relation between the brother and nephew which no longer exists excepting under the most unusual conditions in the Kunandaburi tribe, and which the Dieri regard with abhorrence.

GRÖPP

		Vogeliang.	Mayer.	Philad.
M	Man's son	Athamoon	Ngata mura ..	Ngata mura.
F	Brother's son	Athamoon	Ngata mura ..	Ngata mura.
F	Wife's sister's son	Athamoon	Ngata mura ..	Ngata mura.
M	Man's son	Athamoon	—	—
F	Son	Athani	Ngatani ..	Ngatani.
F	Sister's son	Athani waiki	—	Ngatani.
F	Husband's brother's son	Athani	Ngatani ..	Ngatani.
F	Brother's son	Athani	—	—
M	Man's son	Tinara	—	Tidnara.
F	Son	— mura ..	Ngata mura ..	Ngata mura.

	of them	11 y	37 yr.
Elder brother..	Niehe ..	Negi ..	Negi.
Elder sister ..	Kakoo ..	Kaku ..	Kaku.
Younger brother	Athata ..	Ngatata..	Ngatata.
Younger sister	Athata ..	Ngatata..	Ngatata.
Father's brother's son	Niehe or Athata ..	Negi or Ngatata ..	Negi or Ngatata.
Father's brother's daughter	Kakoo or Athata ..	Kaku or Ngatata ..	Kaku or Ngatata.
Mother's sister's son..	Niehe or Athata ..	Negi or Ngatata ..	Negi or Ngatata.
Mother's sister's daughter	Kakoo or Athata ..	Kaku or Ngatata ..	Kaku or Ngatata.
Father's Pirauru's son	Niehe or Athata ..	Negi or Ngatata ..	Negi or Ngatata.
Father's Pirauru's daughter	Kakoo or Athata ..	Kaku or Ngatata ..	Kaku or Ngatata.
Father's sister's son ..	Kumamie ..	Kami ..	Kami.
Father's sister's daughter	Kumamie ..	Kam ..	Kami.
Mother's son's son	Kumamie ..	Kami ..	Kami.

our first terms require no comment. The of the table represents the relations to each other the diagram it being indifferent whether 7 is female. It follows since 7 and 8 are both in on to 1 and 2 and to 4 and 5, that they are brothers as the terms imply. The third division of the table relations of 7 and 8 to 9. It is not possible for either of 7 or of 8 can stand in marital relation with 9. The class laws forbid it cannot be in fraternal relations to 9. Hence I tried to show a different relation.

I must point out again that the individuals shown may be "groups," and that it is necessary in diagram as a key to the tables to further re been said as to the Pima practice of these I show briefly as to the Dieri terms of relationships, a full and complete list, as no special interest is to the "grand-ancestral" terms. Enough now the principle underlying the system, which is "group marriage," based upon "group marriage." I supplement the Dieri tables by others showing Mandahuri and Yandarranga terms as I have in that they fall generally into the same

the explanations will

MANDAHURI GROUP

Mandahuri	Yandarranga
Naba	Naba
Naba Kodimoli	Naba
Naba Kodimoli	Naba or Bilya
Dipa mali	Pira
Naba	Naba
Naba Kodimoli	P
Naba Kodimoli	Bilya
Dipa mali	
Kokundi	
Kurangi or Ulag	

Ulag = elder women

TABLE F.—PARENTAL GROUP.

	Kunandaburi.	Yandairunga.
Father	Uminu	Kuyia.
Father's brother	Kavali	Kuyia.
Mother's sister's husband	—	Kuyia.
Mother	Amundi	Luka.
Mother's sister	—	—
Father's brother's wife	Amundi	Luka.
Mother's brother	—	—
Father's sister	Uluga	—

TABLE G.—FILIAL GROUP.

	Kunandaburi.	Yandairunga.
son	Karaga	Wardu.
father's son	—	Wardu.
five's sister's son	—	—
sister's son	Denali	—
—	Worua	Wardu.
—	Worua	—
Sister's son	—	—
Husband's brother's son	—	—
Brother's son	Karaga	—

TABLE H.—FRATERNAL GROUP.

	Kunandaburi.	Yandairunga.
her	Kokandi	Nuthi.]
—	Kiranye	Kaku.
mother	Apogi	Kubaka.
—	Apogi	Kubaka.
father's son	Kokundi or apogi	Nuthi.
mother's daughter	Kuranye or apogi	Kaku.
sister's son	—	Nuthi.
her's sister's daughter	—	Kaku.
her's sister's son	—	Witima.
father's sister's daughter	—	Bilya.
Mother's brother's son	—	Witima.
Mother's brother's daughter	—	Bilya.

One matter now remains to be noted as to the relationship of the Dieri. I touch upon it with reluctance, but each will become clear to the reader. I am obliged to

Mr. E. M. Curr in his late work on the "Australian Languages" that there are words used by the aborigines which have the same meaning as our substantive collective terms, uncle, nephew, niece, cousin, and so on. It will be well to consider this statement here because he gives a table of Dieri terms derived from Mr. Gason apparently, in support of his statement. Each of the terms above referred to includes, in our own system at least, two separate relations. For instance, uncle includes father's brother and mother's brother; aunt includes mother's sister and father's sister, and so also with the other terms. I take the term "uncle" for examination in regard to the Australian term, but any other would do. The diagram immediately preceding shows that father's brother, No. 2, and mother's brother, No. 6, are of different classes. It is therefore at once apparent that they cannot stand in the same relation to 7, which would be required by Mr. Curr's statement. I say without hesitation that no one term exists in the Dieri language which includes or can possibly include both "father's brother" and "mother's brother," as does our word "uncle" in the sense in which we use it. As I have shown both by the customs of the Dieri and by the relationship terms that the "father's brother" stand in the same relation to No. 7, and is therefore "father" and not "uncle" (and other); assuming for the sake of argument that the term which Mr. Curr gives in his list (Vol. I, p. 142) is equivalent for the term "uncle." But it is not the mother's brother. It refers to a different class as the diagram shows, by No. 6, both as "father's sister's husband" and "mother's brother." Each of the diagrams in the above-mentioned work will show clearly that in each instance the terms are, or of two couples of terms which, looking from the Dieri standpoint, belong respectively to two distinct intermarrying classes. They stand respectively on opposite sides of the dividing line, and cannot have an opinion towards an individual standing in some relation to him.

Table F of the principal collection of Dieri terms by Mr. Curr with the Dieri terms for comparison. It is left to him to show any one in

but there yet remains a statement on this matter which is to be found on p. 142 of the work referred to. Mr. Curr charges the Rev. Fr.

Fison with "*more suo*" keeping to himself certain terms—that is to say, the substantive collective terms above referred to as being adverse to his argument. Mr. Curr here made a charge of literary dishonesty against Mr. Fison, and I believe he has done so through want of knowledge on his own part of subject on which he writes. Had he devoted that attention to the question which the nature of the subject requires, he could not have fallen into the error which he has committed, nor would he have so recklessly levelled such a serious charge of literary dishonesty against a fellow-worker in the anthropological field. When he comes to see the nature of his own error, it is to be hoped that he will deeply regret the rash and unwarranted assertion which I have quoted. It appears in a work published by the Government of the Colony of Victoria. Only small proportion of those who may read these charges will from personal knowledge be aware how utterly impossible such conduct as that imputed to him would be to the Rev. Lorimer Fison.

In Table I (p. 54) I have given sufficient of the terms to compare with the table given by Mr. Curr in support of statement. In it there are certain terms which at first sight seem to indicate each two distinct relations; and would be "collective terms" in the sense used. As an example, I take the term *kamari*. This term includes two relations which we call collectively "sister-in-law." But the relations are in fact brother's wife (female speaking) and "husband's sister" (female speaking). The diagram will again be of use here in showing why this is. Taking 4 as the person speaking, her brother's brother's sister's husband are seen to be the same person.

3. This is therefore not a collective term in the sense of Mr. Curr, but a "group term," as I have before said. In the same way *kareti*, used by 1, refers to an individual, 6, under two aspects but in the same relation.

§ 5. *Marriage.*

Among the Dieri and kindred tribes there are two forms of marriage: There is the marriage of a man of one class to a woman of the other class, which may be spoken of as "individual marriage," or for convenience as "Noa marriage," using the Dieri term, which is equivalent to our word "spouse." There is also a marital relation existing between a man and a number of women, or between a woman and a number of men, the same as to the classes being observed. This latter connection may be spoken of as "group marriage," or for convenience as the

[illegible]

Tribes of Central Australia.

Dieri word for the practice may be used, speaking of it as "Pirauru marriage." The right understanding of these two systems of marriage, of their relations to each other, and of their social consequences is so important that I feel I shall not need any excuse for entering fully into details as to the Noa and Pirauru systems.

Neither of these two forms of marriage is permitted between persons of the same totem (*murdu*), for these are regarded as being of the same blood, as mother and child, or brother and sister, as the case may be. Nor is it permitted between persons who stand to each other in any of the following relations:—Father, father's brother, father's sister, mother, mother's sister, mother's sister, brother's child, sister's child, father's brother's child, father's sister's child, mother's sister's child, mother's brother's child brother or sister.

These also include the group relations. By this I mean to say that not only would a woman be forbidden to a man as a wife who was the daughter of his mother, but also every woman who stood in the "group relation" of daughter to her.

A man or a woman becomes "Noa" to each other by a woman being promised to him during her infancy by her father or by being allotted specially to him as Noa by the headman and the great council of the tribe. Where a father promises his daughter as "Noa" the agreement is faithfully carried out. A man cannot acquire a Noa until he has passed through the ceremonies of Wilyarri and Mindari.¹ That is, he cannot be promised wife, nor would one be given to him, until he has attained the full rank of manhood. A Dieri woman does not become Noa until after the ceremony of Wilpadrina,² and she is Noa to more than one man at the same time. This restriction does not apply to the man; who may have more than one Noa at the same time. Each man in time obtains a Noa who may be perhaps the old wife of some older man who has died over to him.

There is no customary law in the Dieri tribe which prohibits a man marrying another of the same horde or lesser locality.

The sole restrictions with them depend upon classification or nearness of kin.

Besides this Noa marriage there is also a form of group marriage which is called by the Dieri *Pirauru*, or as known and observed by the white settlers, and called by them, the "Paramour system." My attention was, when exploring in that part of Central Australia, attracted by the unusual laxity observed in the intersexual relations, and the freedom with

¹ See *infra*, p. 82.

² See *infra*, p. 87.

in the Yanturumta, Ieri, and other tribes proffer
hon to friendly strangers.

r. Gason, in his well known and valuable pamphlet on "Ti
erie Tribe," gave some particulars, and I now proceed

I the more full and exact information for which I
am indebted to him.

Shortly before the holding of the first of the series of initia
on ceremonies, which the whole tribe attends, namely, that of
Kuraweli wonkani, the heads of the totems and the elder men
set in council and after deliberation determine which of the
ople shall be allotted to each other as Pirauru. It is
in who have passed through the Mindari ceremony and
in who have passed the Wilpadrina ceremony who can be Pirauru.
The various couples who are thus allotted to each other are
consulted, and it is not considered whether there is or is no
mutual liking or affection between them. The council
decides as to their suitability. That is to say, there
is no disability by reason of class, or of nearness of kin.

In fact, those who may be Pirauru to each other are those
who might become Nea.

A few nights previous to the ceremony of Kuraweli wonkani
the headman, in slow and measured sentences, with a p
sentence, announces the names of each couple
the words are repeated by one or more of

a general shout is raised in the camp,
feasting and amusement, and
have been collected. Dancing is carried on
for about four hours a general licen
wards the Pirauru. Moreover the Pirauru

to each other always in that relation in the future,
allotment takes place at each circumcision cer
so that a man or woman may after a time come

number of Pirauru.

on has described to me that which he saw on this
in unmistakable terms, which may be paraphrased
at the women present and all the men who had passed
an ceremony formed groups of Pirauru in which
being complete promiscuity existed.

may always be seen sitting
together if
from me
men when
its towards his Pirauru
at he cannot see
spring at each other

marrying classes, and even on a special occasion mentioned in the class. The ceremonial occasions are, for instance, at initiation ceremonies or at one of the marriages arranged between a man and a woman of two different tribes. But the consent of the Noa husband is seldom withheld from the male

A Noa husband in ordinary times always takes precedence of Pirauru, but in his absence the senior Pirauru present takes the wife of the former and protects her during his absence. The Noa wife also takes precedence of the female Pirauru should both be together. For instance, if a man were camped somewhere with his Noa and his Pirauru, the man would sleep next the fire, his Noa next to him, and the Pirauru next to her.

Senior male Piraurus take precedence over junior male Piraurus. These matters are carefully arranged so as to prevent jealousy, but in spite of all this arrangement, most of the quarrels among the Dieri arise out of this Pirauru practice, for under it a husband cannot keep his wife exclusively to himself. Nor do the elder men monopolize the women, for since the women are allotted to many men in course of time, there are in fact no men who have not one or more Piraurus, even if they have not a Noa.

Some example will show how the system works among the male Piraurus. Suppose an elder and a younger man had the same woman allotted to each as a Pirauru. In the event of the younger being at some camp with his Noa and his Pirauru and the elder man being there alone, the latter would have a right to take the Pirauru of the former. Should the two men be at the same camp and without their Noas, the older would take precedence and have the company for the time of the Pirauru there who had been allotted to both of these men who was available to them.

At the two men might also occupy the same hut with her and would share with both the food she collected.

As has been before said that the elder men do not monopolize the women, but although they have no absolutely exclusive monopoly it is certain that they have very extended privileges. For instance, the Wilpadrina, which is spoken of elsewhere,¹ is the exercise of an exclusive privilege for a time. The headmen also usually have more Noas and more Piraurus than others. The headman, Jalina Piramurana, had over a dozen Piraurus allotted to him, and in addition several women were assigned to him in each of the neighbouring tribes as a mark of respect, as so to say honorary Piraurus. Any man old

¹ See § 8, *infra*, p. 87.

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tribe are applicable with slight variations to the other neighbouring tribes, and also as I shall show shortly to the Kunandaburi and even to far distant tribes in Eastern Queensland.

At present I shall continue the subject of the Dieri by speaking of marriages between Dieri and neighbouring tribes which are so to say "state affairs."

Such a marriage, for instance, between two individuals of the Dieri and Murdula tribes respectively is a subject of negotiation for several months. Much diplomacy is used, as one tribe desires if possible to sift out the real reasons which induce the other tribe to desire the marriage. As a preliminary, handsome presents, such as spears, boomerangs, carved shields, bags of all kinds, &c., are sent to the woman's father, to the headman of the tribe, and to the other principal men. In the event of the negotiations falling through these presents are returned. Mr. Gason says that he has known occasions where a match was made in a few weeks, both sides being eager to settle the matter with a view of concluding a peace and of terminating disputes and settling grievances. In these cases marriages were the means of preventing bloodshed. The young man and the young woman have no voice in such a marriage. The mother and the near female relatives of the girl keep up a constant wailing at every idle moment. No encouraging word is given to her, and all she has to do is to obey. Whether she likes the marriage or not, she must submit to the will of the elders of the tribe.

In the tribe itself there is always a hot opposition to a marriage which takes a girl out of it, and the fathers in it who have unmarried and eligible sons, offer every objection to the arrangement.

On such a marriage being settled a place is fixed upon near boundary between the two tribes, where a great corroboree (ma) is held. The festivities are kept up for several days, which time free intercourse is allowed between the tribes without regard to existing marriage relations. No jealousy is allowed to be shown during this time under penalty of strangling, but it crops up afterwards and occasions many bloody affrays.

If the girl does not take kindly to her husband she ver-
probably tries to escape home, but is on all such occasions
issued, and if captured is brought back to be jeered at by the
other women. In some cases the girl is also cruelly ill-used.
If, however, the girl takes to her husband and makes her
self popular, she is treated kindly, and it is in her power to command

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arrive at the age of puberty, and often before. The man asks a permission of the girl's father, or that of the mother will suffice, to take the girl away. He then waits until she is some distance from the camp and seizes her, and drags her away, assisted by a friend who is "Abija" to her, that is, who would have been eligible for her husband had she been promised to him. While dragging her away she resists all she can, biting and screaming, while the other women look on laughing, having taken her away to a convenient distance they are joined by one or more men. The bridegroom returns to the camp and the marriage is consummated by the Abija and the other men. Sometimes they do not return to the camp with the girl for two or three days. When the girl is brought back there is what may be described as a continuation of the *jus primæ noctis*, in which all males in the camp participate, not even excepting the nearest male relatives of the bride. This marriage ceremony is sometimes kept up for many days, there being a dance each night. The bride is then taken possession of by her husband. If she runs away from him she is subjected to severe punishment by beating or by cutting with a knife. This marriage relation is called by the Kunandaburi Nūbia, and it agrees with the Noa of the Dieri and the Nūpa of the Yandairunga.

The Kunandaburi have also the equivalent of the Pirauru which is called by them Dilpa mali. It is, as Mr. O'Donnell puts it, a group of Matera men cohabiting with a group of Yungo women, or *vice versa*. They do not always camp together, but when they meet they exercise marital rights, and moreover are constantly changing their Dilpa malis. Every woman, he says, may have as many Dilpa malis as she likes, so long as she does not transgress the class laws. The husband (Nubia) does not object, indeed men often exchanged wives temporarily. It is rare that the men quarrel about women; yet occasionally beat the women through jealousy, but do not always get rest of it. Mr. O'Donnell tells me that at times the women are the men severely single-handed. The husband, that is, the Nubia, accepts some trifling present from the Dilpa mali as his due.

* When in the Cooper's Creek country before it was settled, I observed most formidable knives in use by the natives. They were made of a flake of flint bedded in a lump of gum. This being held in the hand with the sharp cutting edge outwards, formed a terrible weapon at close quarters, with which it was able to inflict fearful wounds on the naked body of an adversary. In such proceedings as those referred to above I have heard of women being almost executed.

I remember an instance of the loan of a wife even in the Kurnai tribes. An ancient had two wives and another ancient, who was going on a journey, was lent one of his two, and explained it by saying, "I am going so long way, that one very lonely."

Besides these marital relations which exist between the groups of Dilpa malia there are such also between men and their brothers' wives and women and their sisters' husbands, but in these cases it is *sub-rosa* and not an open and recognized connection as is that of the Dilpa mali.

A man is the Nubia of his wife and the Nubia-Kodimoli of his brother's wife. When the brother dies the former ceases to be the Kodimoli of the widow, and becomes her Nubia, and her children call him father.

Mr. O'Donnell did not, I regret to say, explain to me how the Dilpa malis became allotted to each other, nor anything more as to the Wira-jinka custom which I shall now mention. He left that part of Australia and I learned no more from him. I cannot, however, doubt that the allotment takes place under some recognized law such as that of the Dieri. All such matters are governed by ceremonial custom.

The Wira-jinka of the Kunandaburi is one of these ceremonial customs which are by them spoken of as Mūni. In this case the Mūni or ceremony terminates by all the men present having intercourse with one woman who has been selected beforehand. Wira-jinka means literally *emissio seminis*, and is held when only a few are present as well as when there are large gatherings. The woman is selected from either class, and all the men and boys present have intercourse with her, no matter what the relationship.

The Wira-jinka is also practised in certain cases of sickness. Similar statements have been made to me by Mr. C. M. A. King, police magistrate at Silveston, in New South Wales, as to his tribes in that district, namely, the Girmuduchie, Punthie-mita, and Wankamira. These tribes have the classes Kilpara and Mukwara. Mr. King enters very fully into details which supplement those given by Mr. O'Donnell, which are, however, not easy to reproduce in print.*

During the writing of this paper some important evidence as to the existence of a form of Pirauru marriage in tribes still more remote from the typical Dieri has reached me from my valued correspondent, Mr. J. C. Muirhead. He says, as follows, speaking of the Wakelbura tribe of the Belyando River in Queensland—

Take as an example seven men of this tribe, all of the Smallbee m, of the Kurgilla sub-class of the Matera class. They are of their own, some of them tribal, brothers—that is

* Such customs as these are probably more general than may have been suggested. A similar extreme licence occurs, according to Mr. Fison, among the tribes of Fiji, when circumcision is practised on the illness of a chief.

I have anticipated any future use which I might make of these details by communicating them *in extenso* to Dr. Tylor.

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say, some of them have the same father and mother, while some are of the same totem. One of these men is married, his wife being carpet-snake, of the Obukan sub-class of Wuthera class. That is the totem which marries with theirs. All these men call her "wife," and she them "husband," and the seven men all have and exercise marital rights over her. Her children call all the men "father," and all the men are bound to protect the children.

This is unmistakably a form of Pirauru marriage, and I communicated it to Mr. Gason, who wrote to me in reply giving the parallel Dieri practice.

He says: "If there are five brothers, two of them own brothers, the rest merely tribal brothers, that is, men of the same Murdu, and one of them has a wife, by their customs and natural laws the whole five exercise marital rights over her, but the four only in the absence of the husband. They are her natural guardians, and take precedence over everyone except her Noa and her Piracooroo. All her children are 'Athamoorana' to the five men, and they are 'Apiri' to the children. These laws are identical with those of the Eastern Queensland tribe which you mentioned to me in your letter."

This instance given by Mr. Gason will also apply *mutatis mutandis* to a case of a man and the sisters of his wife (Noa).

§ 6. Headmen and the Tribal Council: the Punishment of Offences.

It is of great interest to enquire what form is taken in these tribes by the authority which governs the relations of its members towards each other, to the community as a whole, and to neighbouring kindred tribes. Some writers have stated that in Australian tribes there are no chiefs, and also with more or less distinctness that there is no "government," and that the tribesmen do that which seems right to their individual selves. Quite lately statements such as these have been restated in a work of authority, and it is therefore well to see in this particular instance what the evidence of so competent a witness as Mr. Gason amounts to.

Simply as a question of terminology it would be well to avoid the use of the term "chief" in reference to the Australian blacks, because the word suggests the hereditary chieftainships with which we are familiar in some of the Polynesian tribes. But it is certainly erroneous to assert that there are no men who have controlling powers, and that every man may do that which is right in his own eyes.

The statements already made show that in the Dieri tribe as in, I may venture to say, all other Australian communities, there is some social authority apart from public opinion which takes cognizance of offences against the community by individuals, and is competent to redress them. Such a case would be cases of intercourse which are incestuous according to the laws of the Dieri, and are called by them *Buyulu parchana*.¹

As a matter of course there is in each totem some man who is older than all the other men. By reason of this superior age he becomes the head of his totem and is called "*Pina-pinaru*," that is to say, "the oldest of the old," or also "the greatest of the great."

He is the head of his totem and has authority in it as such. His authority is of course restricted to his own totem, and he has no authority in another totem. But though he is thus the head of his own totem it does not necessarily follow that he has the greatest authority and influence in it. In other words, though he may be the head of his totem because of his seniority it does not necessarily follow that he is what may be called the headman of it. He will, however, have this position also if to superior age he adds great ability of some other kind. For instance, an old man whom I knew at Lake Hope was the head of the *Karawura* totem, but he was not a warrior, an orator, or "doctor," and had little or no influence in the tribe beyond his own totem. This is an instance of a man who was head of his totem, but not its headman. On the other hand, *Jalina Pina mirana*, the head of the *Manyura* totem, was eminent as warrior and "doctor," and was at the time when I knew the tribe its recognized principal headman. He is frequently mentioned in this memoir. I may now briefly say that there are headmen of totems, of hordes, and finally of the whole tribe.

These heads of totems and headmen of the tribal organization, the great warriors, the distinguished orators, the powerful wizards, form a council which holds its meetings in secret, and thereat decides upon matters affecting the welfare of the and deals with offences committed against it or against public morality. The extreme interest of this subject requires that should in illustrating it give the statements of Mr. Gason as have them now before me in the manuscript, which I put

¹ See p. 83.

² I observed the great respect and reverence shown to the very old men. On the borders of Sturt's Desert a deputation of very old men came to me to request that I would visit a "*Pina-pinaru*." I did so in their company, and found him to be of advanced age. The others cared for him with the utmost solicitude, and must have carried him from place to place, for he was unable to walk.

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together from his letters and forwarded to him for his inspection and final reconsideration. He says, as follows:—

"A headman of the Dieri tribe attains to power and influence by personal bravery, by eloquence, or by being well connected—that is to say, by having many relations (*Büyülü marpū*),¹ that is to say, 'near relations.' During the time I was with them there was only one headman who had supreme control over the whole tribe. From his extremely polished manner and his gestures, I named him the Frenchman. He was feared and greatly respected by his own and by the neighbouring tribes. Neither his two brothers, both of them inferior to him in bravery and oratorical powers, nor the elder men presumed to interfere with his will or to dictate to the tribe except in minor matters. It was he who decided disputes, and his decisions were received without appeal. Even the neighbouring tribes sent messengers to him with presents of bags, pitcheri,² red ochre, skins, and other things. He decided when and where the ceremonies of circumcision and initiation should take place. His messengers called together people from a circle of a hundred miles to attend the peace festivals (*Mindari*), to attend his councils or in other matters which were considered to affect the welfare of the tribe. I have often been invited to attend his councils, when they proposed to celebrate any grand ceremony. He possessed wonderful powers of oratory, making his listeners believe anything he suggested, and at all times ready to execute his commands. His disposition was not naturally cruel or treacherous, as was that of many of the Dieri, he was when not excited, kind, considerate, patient, and very hospitable. I never saw anything low or mean in him. As a rule the Dieri being separated from all but their own relations, speak ill of each other; but I never heard any one speak of this man *Jalina Piramūrana* but with the greatest respect and even reverence.

"I have often watched him distributing presents to all his personal friends with an evident desire to prevent jealousy. I have seen him put a stop to disputes or fights, even chastising the offenders and not infrequently being himself wounded in so doing. On such an occasion there would be great lamentation, and the person who had inflicted the wound on him would usually be beaten.

"He was one of the greatest of the *Kūnkis*,³ but would not practice his art for their benefit excepting on persons of note,

¹ I have observed that in counting the *Yantrawunta* used "*marapo*" as any definite number beyond "*mandro-mandro*" = four.

² See p. 76.

³ As to *Kūnkis*, see p. 87.

his personal friends, or the heads of his totems. He rendered great service to me while I was stationed in his tribe."

Jalina Piramurana was the son of the previous headman, who was still living when I knew the Dieri, and was a very strong-looking man above sixty years of age, too infirm to join any of the ceremonies, but who gave advice and often boasted to me that he had the command of the tribe before his son acquired it. He was supposed to be proof against magic spells.¹

It is in the power of the headman to give away young women in marriage or as "Pirauru." I have known cases where a couple could not agree together, and the headman seeing this, after a reprimanding, separated them, giving the young woman to another man and providing another wife for the husband.

Besides the headman of the whole tribe there was also a headman of each murdu (totem), whose power and authority were restricted to it. Jalina Piramurana was the headman of the Kunaura Murdu,² and I have heard him boast of being the "Family of life"—"the stay of life."

Besides the men who were the heads of totems, there were other old men who were the headmen of the various hordes of which I have spoken elsewhere.³ These were the oldest men at each place. The same man, as already explained, might be both head of his totem, and head of the horde. The headman of the horde was spoken of as "Father." This Jalina Piramurana was the headman of his totem, but he was also a headman of the whole local organization. In connection with the question as to the existence of recognized authority among the Australian blacks, the fact is especially valuable that Jalina periodically visited the various hordes of the Dieri, and that they sent to him periodical presents which were acknowledged by him in person or by deputy. Such presents were even sent to him from a distance of three hundred miles by tribes beyond the Dieri boundaries, being passed on from tribe to tribe.

To the southward of the true Dieri country and including the northern terminations of the great range of mountains which extends from Spencer's Gulf and ends in the Freeling Heights there was a community of blacks which were nearly related to the Dieri, and whose country has been included on the map (plate I) with that of the Dieri. Mr. Frank James, formerly

¹ Mulnack dukana, see p. 90.

² Kunaura is the seed of the *Portulacca oleracea*, which at times forms a good source of vegetable food to these tribes. The seed is ground and made into porridge and eaten raw, or cooked in the ashes as a cake. The taste reminded me of linseed cake. I have heard him spoken of as head of the Manyara totem, that is to say, of the plant itself.

See p. 95.

Blanchewater and now an officer in the Victorian Police, in writing to me on the subject of the Dieri, says as follows:—

"There was a black at Blanchewater known as Pompey, a notorious enemy of the settlement of the country by the whites. He belonged to the adjacent Hill blacks, but had fled from his tribe in consequence of his being concerned in the murder of two white men, for hut-burning, and other matters. He ultimately became an influential man in the Blanchewater section of the Dieri tribe. The whites looked upon him as the chief of the Blanchewater blacks, but he only had influence with them through his superior intelligence, and had not any assured position in the tribe."

Referring to this statement which, with all other information relating to the Dieri tribe, I submitted to Mr. Gason for confirmation, that gentleman says:—

"I personally knew the notorious Pompey, whose true name was 'Jinabuthina,' who defied the white inhabitants. He was the supreme headman of the Hill tribe, and was recognized as such, but had no influence with the Dieri. The end of Pompey was that he was shot at a place called Umberatuna by the settlers immediately after he had at the head of about eighty warriors attacked the native camp at that station, killed two friendly blacks, and had threatened the life of the wife of a shepherd. This Pompey had committed many murders and other daring atrocities before he was killed. He was of a very different disposition to Jalina, the Dieri headman, for he was a cruel, remorseless wretch without any feelings of pity. I do not think he had one redeeming feature, unless it might be that looking at him from the standpoint of the natives he was a good fighter. Yet he lacked courage when his life was in danger. He was a good leader and had great influence over his tribe, through his oratorical ability and his supposed power of casting *skueli dukana*.¹

"He had three wives equally ferocious and cruel with himself, a terror to the other women of the tribe, who dared not cross them in word or deed."

"These three women, at the head of a party of other women, were very frequently sent as ambassadors to the heart of the Dieri country, loaded with presents of skins of wallaby, emu, and kangaroo for presentation to Jalina, the great headman of the Dieri. These presents were either friendly offerings or sent to settle some matter of difficulty between the tribes. Pompey only as I know went once into the heart of the Dieri country. After his death Jalina often spoke to me about him, and said

¹ See p. 90.

that he had much to thank him for in his position as headman for Pompey had attended him as an orator and had aided him as a man who was an adept with the shield; but he condemned him for his cruelties to the Yandrawontha tribe."

Before speaking of the council of the tribe, I may note that the distinguished men, the warriors, orators, heads of totems, heads of hordes, wore each a circlet of red feathers on their heads as a sign of their position. I do not remember to have seen this in the other tribes, but among the Dieri only.

These men form an inner council within, and distinguished from the general council of the tribe, which is composed of all the initiated men—that is to say, no man has the right of being present at this general council unless he has passed through all the different ceremonies, circumcision, and finally Mindari."

All the younger men look forward for years to pass through the Mindari ceremony so that they may have the honour of appearing at and eventually the right of speaking in the "great council," as they call it.

Whenever these councils are to be held, men are summoned together by some noted old man nominated for that purpose by the headman.

If it be an important subject that has to be considered, the headman introduces the object of the meeting, and it depends upon him whether the others speak. He adheres to the ancient customs, and if all are agreed the council separates. If they not agree, the council is adjourned to another time. Everything concerning the council is kept a profound secret from those who have not the right to be present. For over two years Mr. Mason was unable to obtain permission to enter or to see the secret council and its ceremonies. He sought permission in the usual broken English, spoken to blacks by the whites. He tried intimidation, and he had recourse to presents, but it was only when he acquired a command of the Dieri tongue and that he was permitted to be present. It was said that Kuchi must have instructed him, and as he worked upon their superstitions by favouring this idea, the Dieri at length permitted him to attend their council, and to assist at their ceremonies until at length he was accepted as a fully initiated man as

Yandrawontha, as I know the pronunciation. The difference is to Mr. Mason speaking Dieri. The sound of the "th" is not to him of our English "the," but more that of "di." I do not know of any massacre, but probably some massacre of the outlying Yandrawontha country on the western side of the Grey Ranges; or country on the eastern borders of that of the tribe (Mardulu) was the headman.

even was consulted when any great ceremony was about to take place.

I think it will be well to quote Mr. Gason's own words as to the proceedings of the tribal council when he was present:—

"I have frequently attended by invitation at these councils. On one occasion they gave me permission to speak, and I was thus able to save the life of a man who was being charged with having caused the death of another person. I pointed out that he was at a great distance away from the scene of the death. Two of the members of the council also dared to speak in favour of their friend the accused, and they afterwards made me presents of several bags and weapons for my advocacy of him. Three years after, however, he was cruelly killed by order of the council for an offence which he had not committed, but with which his enemies charged him.

"After the principal headman has spoken, the heads of totems address the assembly. The manner of speaking is a repetition of broken sentences uttered in an excited manner, at times almost frenzied. Those who coincide with the speaker, repeat his sentences in a loud voice, but no one comments on what he says until his turn comes to speak.

"The council always breaks up peacefully, but quarrels sometimes follow it, although the camp is not allowed to know the real cause of disagreement, for the secrets of the council are always kept as sacredly as those of a Masonic lodge. The greatest cruelties are threatened to any one of the council who should divulge its secrets, which are many. I have never heard the younger men or the women drop a word which could convey the idea that anything had been communicated to

"I have often been cautioned not to divulge what I had there heard and seen, nor to repeat any words uttered there to strangers until these had convinced me by ocular demonstration that they had passed through the ceremony of Kurawali wonkana."¹

Mr. Gason has spoken of the manner in which the tribal council deals with offences. These would be *inter alia* doing to oath by witchcraft, for instance, by means of the "bone" or *Mukuli dukana*, murder, breach of the tribal code of morals,

¹ I remember one of the Yerrawaka tribe pointing out to me mysteriously the fact that he had undergone this ceremony. But at the time I knew so little of the language that I could not gather the meaning of the speech. The extreme secrecy observed by the Dieri as to the proceedings of their council of initiated men is paralleled, as I have seen by the coast Murring and Kurnai as to their tribal councils on the subject of their ceremonies. I was most forcibly struck by these two tribes, which have been completely broken by our civilization. superficial peace, which contact with us has given them, hides but does not eradicate their deeply-rooted customs.

offences against tribal custom, and revealing the secrets of the council and of the initiations to the uninitiated or to women.

Offences against the moral code of the tribe would be intercourse with a woman of the same class, or who was too nearly related. Interference with the wives of other men would be merely matters to be revenged by the injured husband by a fight or by the kindred. For instance, if a man desired to obtain a particular woman for a wife, and she being refused to him, he eloped with her, her kindred would make up a party and pursue them. On overtaking them the kindred would take her from him, not necessarily with violence, but if he refused he would be severely dealt with. The prohibition against a man taking a woman of the same class as himself to wife would also prevent him from keeping such a woman should he capture her in warfare, and if he attempted to do so it would be strongly objected to. But he might avoid this by exchanging for some other eligible woman.

Yet this rule which prohibits intercourse with women of the same totem is, according to Mr. Gason, relaxed on the occasion when a mission from another tribe is entertained by the Dieri or when a neighbouring tribe entertains one sent by them, such times the prohibition between the totems is relaxed, and there is a time of general license even between those of the same totem, always provided that they be not within the prohibited degrees of kinship.

Cases have occurred within Mr. Gason's knowledge when this law has been broken through threats by some man towards a woman too nearly related to him, and where the woman did not dare to complain, fearing to be charged with having been a consenting party, for it is one of the most serious offences known to the Dieri. To call anyone, man or woman, *Buyulu parchana*¹ is almost the greatest offence that can be offered to a Dieri. It implies that the person is without shame, and disregards the prohibitions which restrain certain relations from each other.

At a council which Mr. Gason attended, at which a young man was charged with having transgressed this law with his *ngatata*, that is to say, the daughter of his mother's sister

¹ *Buyulu* = near relation, *parchana* = all. The relations of a person either near or remote. The former are *buyulu*, the latter *wowitcha*. Former includes father, father's brother, mother, mother's sister, son, daughter, brother, sister, brother's child, sister's child. The latter includes, for instance, father's brother's wife, mother's sister's husband, husband's mother's son, husband's sister's son. These remarks apply to the other tribes herein with, as well as to the Dieri.

² According to the Dieri system of relationship, a daughter of the mother is *ngatata* = younger sister; the "mother's sister" being herself younger than the "mother."

the council inquired into the matter, and finding the charge to be true, the young man was severely punished, indeed almost killed. Indeed he would have been put to death had not some of the influential people in the tribe interfered on his behalf on the ground that he was only a poor idiot who was not accountable for his actions.

It may be mentioned here that the old men in their leisure hours instruct the younger ones in the laws of the tribe, impressing on them modesty and propriety of conduct as they understand it, and pointing out to them the heinousness of incest. The old women also instruct the younger women in this manner.

An instance of what seems to have been the punishment of an offence against the tribe came partly under my own knowledge. On my second expedition I had with me one of the Blanchewater Dieri, and he accompanied me through the country of his tribe northward as far as the Diamantina River, about where Birdville is now situated. He then ran away and made his way back alone to his own people, where I afterwards saw him on my return to the settlements. Some time after I left I learnt from Mr. Frank James that my guide had been killed by an armed party, which chased him for some nine miles before he was overtaken and killed; the reason given for this being that he had been too familiar with the white men and had served them as a guide.

§ 7. Messengers, Embassies, Expeditions, the Pinya.

The Dieri do not use the "message stick," but send messages by word of mouth only. It is not necessary with them as with some tribes, *e.g.*, the Wirajuri of New South Wales, that certain messages, as, for instance, those relating to the initiation ceremonies, should be carried by a man of the same totem as the sender.

Messengers were sent to gather people together for dances from distances even up to one hundred miles. Such messengers were painted with red ochre and wore a headdress of feathers.

In calling people together for the ceremonies of Willyaru or Mindari the messengers were painted with diagonal stripes of yellow ochre, and had their beards tied tightly into a point. They carried a token shaped like a Prince of Wales' feather and made of emu feathers tied tightly with string. The sending of a handful of red ochre tied up in a small bundle signifies the great Mindari or peace festival. In giving notice of the intention to "make some young men," the messenger takes a handful of charcoal and places a piece in the mouth of each person

present without saying a word. This is fully understood to the "making of young men" at the Willyaru ceremony.

Any tokens used to give notice of matters relating to the initiation ceremonies are not allowed to be shown to or made known to women, girls, or boys.

According to Mr. Vogelsang messengers sent to form a Pinya to avenge a death wear a kind of net on the head and a white frontlet in which is stuck a feather. The messenger is painted with yellow ochre and pipeclay, and bears a bunch of emu feathers stuck in his girdle at the back—at the spine. He carries part of the deceased's beard or some balls of pipeclay from the head of one of those mourning for him. These are shown at the destination of the messenger and are at once under-

Mr. Vogelsang gave me an instance which illustrates this practice. The Pinya was to avenge a death, and the messenger was sent from Kopperamana to a place called Saltcreek. He carried with him a small net called "Yamma." On arriving at his destination and the old men being assembled, he would produce the net in silence, and those present would understand without anything being said that a Pinya was to be made up.

A messenger who is sent to convey the intelligence of a death is smeared all over with white clay. On his approach to the camp the women all commence screaming and crying most violently. After a time the particulars of the death are known to the camp. The near relations and friends then weep. Old men even cry bitterly, and their friends comfort them if they were children. On the following day the near relations dress in mourning by smearing themselves over with clay. Widows and widowers are prohibited by custom uttering a word until the clay has worn off, however long it remain on them. They do not, however, rub it off, as so would be considered a bad omen. It must absolutely of itself. During this period they communicate by gesture language.

The message is to call together a meeting of the elder men. The messenger would be some noted old man nominated by the headman who sent the message. The same would be the case when neighbouring tribes are invited to attend the making of initiation. But in any other matters which might be sent by danger or where there was fear of treachery it was sent by men who were sent but women.

These are the most important messages which were sent by the messenger to neighbouring tribes relating to disputes between tribes. When women were chosen, and if possible, the tribe to which the embassy,

if it may be so spoken of, was sent. Women were chosen for these messages because they would not be treacherously made away with as might be the case with men.

The women sent were usually the wives of heads of totems, and occasionally one of the wives of the principal headman was sent.

The women were accompanied by their piraurus, for it was considered by the Dieri that on such missions a man would be more complaisant as to the acts of his pirauru than he would be as to those of his Noa. For in these missions it is thoroughly understood that the women are to use every influence in their power to obtain a successful issue for their mission, and are therefore free of their favours.

If the mission is successful there is a time of license between its members and the tribe or part of a tribe to which it has been sent. This is always the case, and if the Dieri women failed in it it would be at the risk of death on their return. This promiscuity is not regarded with any jealousy by the women of the tribe to which the mission is sent, but as a matter of course. They know of it but do not see it, as it occurs at a place apart from their camp.

The members of the mission are treated as distinguished guests. Food is provided for them by their hosts, and on their return home after about a week's stay they are loaded with presents. If the mission is unsuccessful the women are sent back bearing messages of dreadful threats.

The mode of announcing a mission, whether by male or female messengers, is by telling it to the headman of the camp alone in a quiet manner immediately on the arrival of the messengers. Nothing is then said further to anyone, but when all are in the camp about the time for retiring to rest, the headman announces their arrival and the object of their mission. There is then an excited discussion upon it, if it be some matter of moment or of general interest, for an hour or two. It is resumed again at break of day, and so on night and morning from day to day until some definite determination is arrived at.

The arguments of the different old men who speak are well noted by the messengers, who, on their return, repeat as nearly as possible the popular sentiments in the tribe they have visited.

Mr. Gason says that he has on several occasions been present on the return of such a mission which had been entrusted to women. The headman and the principal old men received the women kindly and congratulated them upon their safe return. Mr. Gason remarks that the headman had an anxious

appearance, and that the old men clutched their spears in an excited manner. No one but the headman spoke to the women on their first return, but on all being seated and after a little while, the old men questioned the women as to the success of their mission. The result was at once told to all the people there camped, who rejoiced if the mission had been successful, but became fearfully excited if it had failed, and seemed to lose all control over themselves, rushing, yelling to and fro, throwing up sand into the air, biting themselves and brandishing their weapons in the wildest manner imaginable.

In cases where the mission was successful women of the other tribe accompanied it back to testify the approval of their tribe of the treaty arrived at.

Such treaties are probably observed quite as faithfully as many treaties more formally made by civilized peoples. During my explorations north of Cooper's Creek, an attempt was made by some of the Yerawaka tribe to surprise my camp at night. As I was most desirous of keeping on friendly terms with these people, I next day went to their camp with a black boy who spoke their language, and I there cautioned the old men against in any way molesting us. I told them I had no desire to molest them, but that if I found any of them near my camp after dark I should shoot them without further notice. The old men were inclined to treat the matter as a joke, but after some further conversation the old men agreed that none of their people should come near our camps at night, and that when doing so in the daytime they were to lay down their spears at a little distance. On my part I promised to do them no harm in any manner. This agreement was kept by them, and believed that not only they, but their neighbours also, laid down their weapons when visiting my camp.

As the Dieri send missions to the surrounding tribes so do we when occasion requires it and then the proceedings are as have been detailed.

It may be here noted that a Dieri if of no note or influence, coming at a camp after a considerable absence, takes his seat at the camp without saying anything. After remaining silent a few minutes, the old men alone gather round him and ask where he comes from and what has befallen him. He then tells all his news and often does not fail to embellish. Then the old men stand up, one retelling it and the other repeating sentences in an elevated manner. The new-comer, if he is a singer, is hospitably entertained.

H. Vogelung and of the Dieri:
and hospitality. For instance,
and the question is asked

I remember being one night near to a small "mob" of friendly Yerawaka some distance to the north of Cooper's Creek, and only separated from their encampment by a rather narrow, though deep water channel. I could watch all their movements by the light of their fires, and hear what was spoken in a loud tone. The evening was spent in great feasting by them. A stranger had arrived from the south, probably, as I now see, a Dieri, and his news was retailed in a loud tone to the people of the camp, and as I now remember it it seemed to me to have gone on for hours. The women were busy till late at night preparing food by pounding and grinding seeds of the Nardoo and Manyura. My black boy, who listened with great interest to the speeches, told me that this man was a "walkabout black fellow," in other words a messenger who had arrived from the south and was telling them the news.

[A man of influence arriving at one of the camps of his own tribe is received by the inmates with raised weapons as if in defiance. Upon this the visitor rushes at them, making believe as if to strike them, they warding off his feints with their shields. Immediately after they embrace him, and lead him to his camp, where the women shortly after bring him food. If he visits a neighbouring tribe he is received in the same manner.]

I observed with much interest during my explorations of Sturt's Desert, and in the Yerawaka country, how my party was ceremoniously announced by one of the Yantruwunta tribe who accompanied me, and so to say accredited us. On arriving within shouting distance of the camp, the guide halted us, breaking off a branch of a tree or of a bush, went forward somewhat nearer to the group of old men who had come from their camp towards us. The guide, waving the branch, shouted out that we were travelling peaceably. Some conversation upon this took place in a loud tone of voice between him and one of the old men. Matters having been thus satisfactorily arranged, the old men came forward and conducted us to a place adjoining the water where we were to make our camp, facing their encampment. They then sent some of the younger men gather wood for us.

On this trip I was taken by Yerawaka guides obtained near this place from camp to camp, through a great part of the round by Lake Lipson in the most friendly manner.

If visitors are expected, and it is thought that they may not know exactly where the camp is, smoke signals are used. These

Mina Murdu? meaning 'What are you?'—Bird, Kangaroo, Rat, Mouse, as the case may be. All those of the same name live then in the same huts, eat together, live together, and even lend each other their women."

also used to call attention of distant parties with whom the smoke-maker wishes to communicate.

I observed such smokes as these when out in the Yandairnga country south-west of Lake Eyre, which then, in the year 1857, had not long been discovered by Stuart. Almost daily I observed columns of smoke rising from the flat-topped ranges common there. These signals were, I then thought, made to attract attention of other Yandairnga to the strangers travelling in their country.

The Dieri also sent out periodically parties, consisting exclusively of men, for various purposes. All the tribes in this part of Central Australia, and indeed far beyond it, use as a narcotic the dried twigs of the pitcheri bush.¹

The Dieri sent an expedition of able-bodied men annually to the pitcheri country on the Herbert River in Queensland, a distance of some 250 miles. This party has to pass through several hostile tribes on its journey, and must fight its way if necessary. On arriving at the pitcheri country, the leaves and small twigs of the bush are carefully picked off. Small holes two feet deep are dug in the sand, and heated with live coals. The pitcheri is then put in the holes after they have been cleaned out and is covered up with hot sand and baked. When the sap has been evaporated the pitcheri is taken out and packed up neatly in netted bags and small wallaby skins, each man getting about 70 lbs. weight.

Preparations are made by the Dieri tribe for the return of the pitcheri expeditions. New huts are made, seeds of the pitcheri are stored up for their fathers, brothers, husbands and

When the expedition returns its members are full of stories of the battles they have fought, of tribes they have seen, who have toes on their feet behind as well as in front. They bring back all kinds of wild and extravagant reports. There is much rejoicing over the safe return of the party. The pitcheri, brought from so great a distance, and obtained under so many difficulties, is all gone after a few months, being sent away to the more southern tribes.⁴

Johns Patterson (Lind).

Lake Eyre. I observed hampers made of twisted grass, daubed inside with mud for containing about half a bushel of the seed of the *Manyara* (*Manyara*).

I suspect that these tales refer to those more easterly tribes who use a kind of moccasins, made, I believe, of kangaroo skin, and are leaving any, or exactly any, track.

Travellers spread all over the interior of the continent. The tribes trade with their southern neighbours for the skins of kangaroos; the northern and eastern tribes for their shields. Ornamental belts were worn, and I once observed the single valve of a large marine shell, which has been passed on from tribe to tribe, probably from the northern

Tribes of Central Australia.

Mr. Gason tells me that when the Dieri expedition returned he used to obtain as much as six bags, weighing each three pounds, for one shirt. As soon as the pitcheri became scarce, the leading men would come to him bringing all kinds of weapons as presents for a small quantity, begging him to give them "one little chew"—*pitcheri waka jinkeami*.

I found the use of pitcheri very common with the Yantruwunta at Cooper's Creek. I had frequently a quid of pitcheri offered me fresh from the mouth of a friendly black fellow, and I have obtained it in an unchewed state done up in small closely netted bags made of grass twine and human hair. The Yantruwunta told me that they travelled about ten days' journey, and they pointed to the north-west as the direction. This might give a distance of from 150 to 200 miles, and would roughly agree with the position of what is now known as the 'Pitcheri country.' The Yantruwunta mixed their pitcheri with the dried leaves of a bush called by them "Wira," which grows plentifully on the sand hills in parts of their country. The Wira is prepared by breaking off small twigs and drying them in the hot ashes. They are then broken up and mixed with the pitcheri for chewing. The use of pitcheri was known not only to the Cooper's Creek tribes but also as far as least as the Barrier Ranges in New South Wales.

In July or August in each year the Dieri also sent out another expedition southwards to procure red ochre. This was always regarded as being a perilous expedition accompanied by many dangers and privations. The party had to travel three hundred miles and back, through the country of hostile tribes, keeping strict watch every night and having to procure their food as they travelled, and on their return journey each man carried from 60 to 100 lbs. weight of artificially made up red ochre. The men were all picked, and the expedition was under the guidance of some great leader. The men were marked each with three stripes of red ochre and with three black ones of micaceous iron ore immediately under the former across the abdomen. Two marks of the same were drawn across the arms. Each man had all the hair of his beard and moustache plucked out and the hair of his head cut short before he started.

Mr. Frank James tells me, speaking of the Blanchewater section of the Dieri tribe, that the annual expedition down the v plains for red ochre was one of the most important duties of the tribe. Some seventy or eighty of the pick of the fighting men went on this trip, all well armed, and they fought with and killed all the blacks who dared to oppose them. The ochre was kneaded into large cakes and was carried back for use at

A. W. HOWITT.—*The Dieri and other kindred*

war paint, for charms, &c., and it was one of the principal articles they gave in exchange to the other tribes beyond them for spears, shields, and other weapons.

The Yantruwunta gave me a similar account of their annual expedition to fetch red ochre, but also for the slabs of sandstone on which they grind their seeds for food. The locality to which they resorted for these things must have been, to judge by their statements, far down on the western side of the Flinders Range; the distance must have been over three hundred miles. They told me that the party could not stop two days in any one place on the journey, but had to fight its way there and back, and to hunt for food as well. The flagstones used for grinding seed upon were procured somewhere near to the red ochre mine. Each man carried back either a slab of sandstone or a lump of ochre on his head.

A third party which the Dieri sent out was the dreaded Pinya. It was the avenger of the dead, of those who were believed to have been done to death by sorcery, such as the "bone." I have already said something of it when speaking of the manner in which messages are delivered.

The appearance at a camp of one or more men, marked each with a white band round the head, with diagonal white and red stripes across the breast and stomach, and with the point of the beard tied up and tipped with human hair, is the sign of a Pinya being about. These men do not converse on ordinary matters, and their appearance is a warning to the camp to listen attentively and to reply truly to such questions as may be put concerning the whereabouts of the condemned man. Knowing the remorseless spirit of the Pinya, any and every question is answered in terror.

I have no direct evidence of the Pinya having been in force at Cooper's Creek, but I think it almost certain that it was. The tribes there were intimately connected with the Dieri, and their language and customs generally were the same. Moreover I remember meeting men there painted and with their beards tied up, as described to me by Mr. Gason.

There is a curious custom among the Dieri which may find record in this section. It is called Yitchin. When a black man is going to a distance from home either to one of the lesser divisions, or to a neighbouring tribe, some one becomes his Yitchin. This is done by placing a string of or of native flax round his neck to remind him to bring back presents. It then becomes his duty to collect presents for his Yitchin. This he does by visiting the various places where he can find presents. He then brings them back to his Yitchin. This he does by visiting the various places where he can find presents. He then brings them back to his Yitchin.

have all the men in the camp at him, and he would be called and considered an untrustworthy man. Mr. Gason tells me that he has often been the Yütkin of some Dieri men, giving them old wearing apparel, and receiving from them in return carved weapons and ornamental articles. This practice is used for bartering. For instance, if a man saw a carved boomerang which he desired, he would say to the owner of it, "I will give you such and such things for it if you will be my Yütkin." If they agree they become Yütkin, and the one man, after some trip to an outside camp of the tribe or elsewhere, returns with the things bargained for, hands them over, and the exchange is made. When people see a Dieri man or woman with a string about his or her neck it is said, "For whom are you Yütkin?" A son may be Yütkin for his father; for instance, a father may promise to make some boomerangs for his sons while they are out hunting for him. Whatever they catch, no matter how much it is, they on their return hand to him, and the women flock round to see what kind of Yütkin the boys have been. The boomerangs are, of course, made and handed over at once. Mr. Gason has seen little boys of from seven to ten years of age coaxing their father to make them boomerangs, promising to be his Yütkin.

Mr. Gason always had several Yütkin, and when he heard of blacks about to visit a neighbouring tribe he sent for them, and giving them presents, they would request him to place a cord round the neck of each, as Yütkin. On their return they brought him presents in return, such as carved weapons, ornamental bags, &c.

§ 8. *Initiation Ceremonies.*

The initiation ceremonies of the Dieri tribe, as will be seen from the following account, which is compiled from Mr. Gason's communications, differ very materially in detail from those of more eastern tribes of which the Kuringal of the Coast Murring, elsewhere described by me, may be taken as an example. The Dieri ceremonies are typical of those of the kindred tribes which are referred to in this memoir, and I find that they even extend, in a modified form, while still retaining the blood-letting ceremony under its name of Wilyaru, to the Adajadūra tribe of Yorks Peninsula. So far as I am aware at present the peculiar rite which, to use the Dieri term, may be called Kūlpi, seems to be confined to such tribes as practice circumcision. If, there-

¹ "On some Australian Ceremonies of Initiation," "Journ. Anthropol. Inst.," May, 1884, vol. xiii, p. 432.

fore, a line be drawn from the Murray mouth northwards to the Gulf of Carpentaria, it will roughly denote the boundary between the two types of initiations. To the west of this line circum- and Kūlp are found; while to the east of it initiation ceremonies of the Kuringal (Bora) type prevail. It must be understood, however, that this line is no more than a rough approximation, and that either type may be found in places within the general limits of the other.

It is the principal headman (Pina Pinaru) of the tribe who decides when youths shall be passed through the various stages of the initiation ceremonies. That is to say, he decides upon the time when he finds that there are a sufficient number ready. The matter is, of course, brought by him before the Great Council, but he decides so far as concerns the time and place and as to which youths are to be initiated.

The knocking out of teeth, as practised in this tribe, is performed at an earlier period than in tribes having the Bora ceremonies; that is, to say, at an earlier period in the course of initiation, and is not confined only to the boys.

[When a child is from eight to twelve years of age the two front teeth of the upper jaw are taken out in the following manner:—Two pieces of the Cooya Mura tree, each about a foot long, are sharpened at one end to a wedge-like shape, then placed on either side of the tooth to be extracted, and driven in fully. A piece of wallaby skin folded two or three times is placed against the tooth. A piece of wood, about two feet long, is placed against the wallaby skin and struck with a heavy mallet. Two blows suffice to loosen the tooth, which is then led out by the hand. This operation is repeated on the second tooth. As soon as the teeth are extracted a piece of red clay is placed in the holes to stop bleeding. The boy or girl, as the case may be, is forbidden during the ceremony, or three days after, to look at the men who were present, but whose faces were turned from them. It is thought that a breach of this rule would cause children's mouths to close up, and consequently that they would not be able to eat afterwards. The teeth drawn are placed in the centre of a bunch of emu feathers, smeared with fat, and are kept for about twelve months under the belief that if thrown away the eaglehawk would cause the child to grow in their place, to turn up over the upper lip, and die.]

The teeth being carefully wrapped up with emu feathers by the boy's father, or the nearest relatives, until the mouth is completely healed, and even for long afterwards, when the boy is accompanied by a few old men, not necessarily men of rank, dispose of them as follows:—

low rumbling noise, not using any words, blows two or three times with his mouth, and jerks the teeth through his hand to some little distance. He then buries them about eighteen inches under the ground. The jerking movement is intended to show that he has thereby taken all the life out of them, as should he fail to do so the boy would be liable to an ulcerated mouth, impediment in speech, a wry mouth, and ultimately a distorted face.

A belief is here shown in an intimate connection between the teeth and the person from whom they were extracted when even at a distance, and after a considerable lapse of time. Such a belief is not peculiar to the Dieri. The Murring also hold it. When I returned from the Kuringal of that tribe, which I have elsewhere described, I took with me, in the character of the headman who had caused the ceremonies to be held, the teeth which had been knocked out. In the proper course of events it would have been my duty to hand them to one of the other headmen, who would then again send them on, until having made the round of the whole district from which the people who attended the ceremonies had come, the teeth would ultimately return to their former possessor and be retained by him.

Nearly twelve months after my return one of the principal Murring men came to me, having travelled some 300 miles from his home on the southern coast of New South Wales. His errand was to fetch back the teeth, and he explained that he had been sent for them because one of the boys had fallen into ill-health, and it was believed that the teeth had received some injury and had affected him. He received the teeth from me with an assurance that they had been placed in a box apart from any substances, such as "quartz crystals," which could influence them. He returned home, bearing the teeth with him carefully wrapped up and concealed.

Kurawéli-wónkana, or the ceremony of circumcision, is performed when a boy is about nine or ten years of age. The public proceedings are commenced by a woman walking up to a youth in the early part of the evening and quietly slipping a string made of human hair over his head, to which is attached a mussel shell (*Kūri*). This woman is a married woman, not of his totem or class or in any way related to him. This is usually the commencement of a row. Neither the boy nor his father have been previously made aware of what is intended. Directly the boy finds the shell suspended round his neck he jumps up and runs out of the camp. His father becomes

¹ *Kurawéli* = boy; *wónkana* = singing.

enraged, for it is generally the case that fathers think their sons too young to undergo the painful operation. Becoming enraged he attacks the elders and a general fight results.

From the moment the boy rushes out of the camp until several months after the circumcision, excepting the night immediately before the ceremony, no woman is supposed to have a sight of him. The night before the circumcision all the women see him for a few minutes only.

At this time all the available tribespeople are collected, and, as has been stated at p. 56, there is for the time unrestricted intercourse between those who are pirauru to each other. Afterwards this gives rise to many bloody quarrels, but they dare not speak of what is done at the Kuraweli-wonkana, fearing severe punishment for trying to undermine and tamper with their established rules. Immediately before the boy is circumcised a young man picks up a handful of sand and sprinkles it as he runs round the camp. This is supposed to drive out Kuchi and to keep Muramura in.

As soon as the circumcision has taken place the father of the boy stoops over him and fancying himself inspired by Muramura, gives him a new name. He is then taken away by some young men and kept away for several months.

The next ceremony after circumcision is that called Wilyaru. The young man without previous warning is led out of the camp by old men. On the succeeding morning the man, old men and elder brothers, surround him. One of the old men then smears his face and body with bang and washes the rest about an inch from the skin of blood, which is allowed to play until he is covered with it, and the old men then takes his place, and so on becomes quite stiff from the quantity of bang. The reason given for this practice is that it is into the young man, and also shows him that it is nothing, so that should he receive

a matter of no moment

[the young man]

no young men on

his neck with a

raised scars done

through the W

s. Wilyaru he will point

until the scars are healed

the

Immediately after the ceremony of Wilyaru a wooden instrument is given to the youth. It is called "Yuntha," and is from 6 to 9 inches long, $\frac{1}{16}$ inch thick, and from 2 to 2 $\frac{1}{2}$ inches wide. It has notches at each side.¹ It has a small hole at one end, to which is attached a string about 10 to 12 feet long, made either of native flax or human hair. On the Yuntha being whirled round the head it makes a loud humming sound.

The Yuntha is never seen by the women, and they do not know what causes the sound made by it. The men tell them that it is Muramura inspiring the young man to make the noise, and that this shows that he is satisfied with the Wilyaru ceremony. It was some time after Mr. Gason was initiated in the Dieri ceremonies that the Yuntha was shown to him, and he was required to promise never to show it to women, or to let them know that he possessed one.

A Yuntha which has been used at the Wilyaru is marked with a number of small notches on the side at one end. If by chance a Yuntha is lost, the finder examines it to see whether it bears any notches; if it has, he carefully secretes it and acquaints the elders of his find. If there are no notches he treats it just as a plain piece of wood, and he may even carry it to the camp and make a joke of it. The Yuntha is one of the most important secrets of the tribe, and the knowledge of it is kept inviolate from the women. The belief is that if the women were to see a Yuntha which had been used at the ceremonies and know the secret of it, the Dieri tribe would ever afterwards be without snakes, lizards, and other such food.

Mr. Gason tells me that when he was initiated he was required to promise that he would keep all their secrets, and never, even by a tracing on the ground, to show the Yuntha to women. When the Yuntha is given to the youth he is instructed that he must twirl it round his head when he is out hunting. The Dieri think that when the Yuntha is handed to the young Wilyaru he becomes inspired by Muramura, and that he has the power by whirling it when he goes out in search of game and before his wounds are healed, to cause a good harvest of lizards, snakes, and other reptiles.

The young man is never seen by the women from the time when he is made Wilyaru until he returns to the camp, after perhaps many months. All the blood which was caused to stream over him has worn off, and the gashes are thoroughly healed before he shows himself at the camp. All his near female relations⁽²⁾ become very anxious about him during the time of his

¹ One in my possession, for which I have to thank Mr. Gason, has plain ends.

² *Bayala-garahana*. These are those whom the Dieri regard as being too

be seen, often enquiring as to his whereabouts. About a
 after the ceremony, and at night, he approaches the camp
 during the night is very dark, and there is no moon.
 commences twirling the Yumha, causing a loud noise. When
 this is heard the men, excepting the elders, go out and visit,
 carrying with them food which the women have prepared.
 They cheer up and encourage the young Wilyaru. He
 departs again, accompanied by a few young men who
 already been made Wilyaru. They keep him company as he
 cannot come to the camp, nor may he even be seen by the
 women until his wounds are healed.

There is a great rejoicing when the Wilyaru finally returns
 to the camp. He is made much of, especially by his "mother"
 and his "sisters," but he is prohibited from speaking to any
 the actual operators in the Wilyaru ceremony until he is
 given some kind of present to each. As he hands the present
 to one of the operators he is in return told that he may now
 speak. This custom is carried out strictly. Mr. Gason says
 that he never witnessed a Wilyaru ceremony without receiving
 a present from the youth, and he never could in the case of
 those who had been through this, or the previously described
 ceremony, induce one of them to speak until after the present
 had been given to him.

During the ordeal of the Wilyaru, the next
 ordeal is that of the Mandari, which is
 performed by the D. or by the neighbouring
 sufficient young men to the tribe who
 ceremony, and each tribe being on from
 a council is held to determine time.
 pointed women are sent to the neighbouring tri-
 in the ceremony, the preparations for which,
 is, collecting food, and the arrangements generally
 from six to seven weeks. Every day witnesses fresh
 of men, women, and children, and as soon as the first
 arriving party come in sight the Mandari son
 the strangers that they are hailed as friends.
 having arrived, they wait for the full of the moon
 light during the ceremony, which com-
 at. Meantime at every sunrise and at intervals
 the men join in the Mandari song.
 of the ceremony the young men are dressed
 in a sing tied with strings of
 (the) are fastened on

the top. Feathers of the owl and the emu are fastened to the forehead and ears, and a large Yinka or girdle made of human hair is wound round the waist. The face is painted red and black.

All the men, women, and children now begin to shout with the full force of their lungs for about ten minutes. They then separate, the women going a little way from the camp to dance, while the men proceed to a distance of about 300 yards, the site selected being a plain, generally of hard ground, which is neatly swept. A little boy of about four years of age opens the ceremony, being tricked out all over with down of the swan and wild duck, bearing a bunch of emu feathers on his head and having his face painted red and white. He dances into the ring, the young men following him, and they followed by the old men. The dance is kept up for about ten minutes, when the boy stops the dance by running off the dancing ground.

All the young men then go through many extraordinary evolutions, and this is continued until sunrise, when, all being tired, the ceremony is closed and they retire to sleep during the day.

The reason for holding this ceremony is to enable all the tribes to meet and to amicably settle any dispute that may have arisen since the last Mindari.]

Connected with the initiation ceremonies but evidently not essential as regards all the initiated, is a most remarkable operation to which some are subjected, and which is called by the Dieri Kulpi.¹ This is a convenient word for this rite, and I shall therefore use it both for the proceeding itself, and also for the person who has been affected by it. I have before said that a line drawn from the Murray mouth to the Gulf of Carpentaria roughly separates the area where circumcision is practised from that where it is not known. The same line will serve to show also the boundaries of the Kulpi practice. I have several accounts from correspondents in the Western half of the Australian Continent giving me a detailed account of this matter, but on no one have I received a more complete account than from Mr. Gason, which is as follows:—

At the secret council at which the circumcision ceremony is determined upon, the headman and the heads of totems fix upon certain youths to become Kulpi, while deciding that other youths shall not be Kulpi. Certain men are nominated to see the decision carried out, and they are responsible to the headman for the proper incision being made, clean, straight, and without any unnecessary violence.

No warning or notice is given to the young man. He goes

¹ Mr. R. M. Carr in his work, "The Australian Race," calls this "the site."

the women in a perfectly nude state. It is to the Kulpis that important matters bearing on the welfare of the tribe are entrusted, and they always take precedence of the other men who are not Kulpi. They hold in fact the most important positions, and powerfully influence the government of the tribe.

The headman, Jalina Piramurana, in complimenting a Kulpi on the satisfactory manner in which he had accomplished some mission or matter which had been entrusted to him, was accustomed also to refer to his being a Kulpi.

All men sent on special missions to other tribes are Kulpi. It would never be even thought of to send a non-Kulpi in charge, as he would not carry much weight or have such influence as a Kulpi.

Men often express regret that they were not Kulpi, feeling some jealousy of the superior position of those who are so distinguished, for the Kulpis also take precedence at the grand corroborees, where they are the principal leading dancers and also as "masters of the ceremonies" generally.

The Dieri say, according to Mr. Gason, that the object of the Kulpi operation is "cleanliness," and that without it no one can be a "thorough man."

On the young women coming to maturity there is a sort of ceremony called Wilpadrina. At it the elder men have a right to their young women, and exercise it, the other women being cognizant of it, and being present.

§ 9. Doctors and Wizards.

The Kunki, or as he is generally called by the whites, the "Doctor," is supposed to have direct communication with two spirits, Kūchi and Mūra Mūra. He interprets dreams and reveals to the relatives of the dead the person by whom the deceased has been killed. If a Dieri has a dream and fancies he has seen a departed friend during the night, he reports the circumstance to the Kunki, probably not omitting to embellish the account. The Kunki perhaps declares that it is a revelation and not a mere dream, and announces it in the camp in an excited speech. For the Dieri distinguish between what they consider a vision and that which is a mere dream. The latter is called Apitcha, and is thought only to be a fancy of the head.

¹ There are many circumstances connected with the Kulpi practice which, although unfit for publication, ought to be placed on record in some way. I have sent some in manuscript to Dr. E. B. Tylor. The Rev. L. Fison informs me that the Kulpi is performed by certain Fijian tribes as a surgical operation in cases of wasting sickness.

The visions are attributed to Kuchi, a powerful malignant spirit who gives to the Kunki his power to produce disease and death, or to heal that which some other Kunki has caused. If the Kunki declares that the sleeper had a real vision of his dead friend, he may order food to be placed for the dead, or a fire to be made so that his spirit may come and warm itself. But it depends much upon the manner in which the interpretation is received by the elders whether the Kunki follows it up. The Kunki also professes to cure disease. Jalina Piramarrana was a noted Kunki, as was his father before him, but he would not exercise his power excepting on behalf of persons of

On one occasion Mr. Gason caught cold attended by fever. Jalina, hearing that he was ill, sent down to ask permission from the other troopers to "drive Kuchi out of the police camp," before he came to examine Mr. Gason as his patient.

When one of the Dieri dies, whether man, woman, or child, there is always a kind of inquest on the body, as no one is believed to die from natural causes.

The corpse having been tied together and being enveloped in a skin rug [is carried to the grave on the heads of three or four men, and on arrival is placed on its back on the ground for a few minutes. Then some men kneel down near the grave while others place the corpse on their heads. One of the old men,

a nearest relative, now takes two light rods, tallish, about three feet long, and holds one in each hand while standing about two yards from the corpse. He then brings the rods together and questions the deceased as to the cause of his death, and asks the name of the person from whom they attribute death to some spell or charm, or an enemy. The men sitting round act as interpreters for the defunct, and according as opinion prevails the name of some other tribe is given. When the old man beats the rods together the men and women round crying and the body is removed from the heads of its bearers and is lowered into the grave, in which there is a man appointed to the deceased, who proceeds to cut off all the fat from the muscles of the face, thighs, arms, and stomach, and is then to be swallowed by some of the tribe. It is said that they may not be continuously at the grave, and thus become a nuisance to those in the neighbourhood. The men who cut the fat have a black mark on their forehead, and the women have a black mark on their cheek. The

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be made aware by this sign of the death, and thus avoid a chance of hurting the feelings of the survivors. This black mark is called "mūna mūrū-mūrū," or "black mouth."

[The order in which the relatives partake of their dead relatives is this. The mother eats of her children, and the children of their mother.] A man eats of his sister's husband and of his brother's wife. Mother's brothers, mother's sisters, sister's children, mother's parents, or daughter's children are also eaten by those to whom the deceased stands in such relation. [But the father does not eat of his children nor do the children eat of their sire.]

When all is completed the grave is filled in and a large stack of wood is placed over it. Invariably after a death the Dieri shift their camp and never after speak of or refer to the defunct.

It is thought that when a person dies the spirit ascends Pūri-wilpana, or the sky. It can also roam the earth but cannot become visible, except in visions. Food is placed at the grave for many days, if the dead person was one of influence, and if in the winter months a fire is lighted in order that the ghost may warm itself. The ground round the grave is carefully swept, and Mr. Gason has often heard the Dieri declare that they had seen the tracks of the deceased, although they could not see the spirit itself. Should the food not be touched it is thought that the spirit was not hungry.

They also think that the ghosts can take up their abode in ancient trees and therefore speak with reverence of these trees, and are careful that they shall not be cut down or burned.

The Dieri never wish to die, and consider that they are punished by Mura Mura during life for any offence.

No trinkets, weapons, or decorations are buried with the corpse, which is merely rolled up in any old wrapper which might have been around it when death occurred.¹ For months after a death the near relatives are smeared over with white clay. They are forbidden to speak a word, and if they want anything they ask for it by signs, and if spoken to they reply in the same manner. The women mourn and are speechless much longer than the men. Great sympathy is felt for those who are in mourning, and their friends seeing them thus will often burst out into genuine tears of grief for them.

[As no one is supposed to die from any cause other than the machinations of some one in his own or a neighbouring tribe, so

¹ I was much struck with the almost complete absence of anything like coverings, as for instance skin rugs, among these tribes. The Dieri obtained the use of wallaby and kangaroo from the hill tribes south of them; but the Arrerunta and Yerawaka had none. I once saw a possum skin used as a covering by a very old woman, and this was quite exceptional.

men, women, and children are in constant terror of having offended some one who may therefore bear enmity to them.

One of the most common spells which it is supposed is used is that known as "Mukūeli dukana," from Muku and dukana = to strike. Therefore, so soon as a person becomes ill, there is a consultation to find out who has "given him bone." If the sick man does not get better, his wife, or if he not get one, the wife of his nearest relative, accompanied by piraaru, is ordered to go to the person suspected. This she and makes the person a few presents without saying more than that her husband (or so and so) has fallen ill and is not expected to recover. The man knowing by this that he is suspected, usually tells the woman that she can return to her relative, as he will withdraw all power from the bone by steeping it in water. If the sick man dies, and especially if he happens to be a person of importance, the suspected man is certain to be killed.]

This bone is the small one of the human leg. When the tribe desires to kill some one at a distance, Mr. Gason has known the principal men join in pointing these bones wrapped in emu feathers and fat in the direction of the intended victim, and at the same time naming the death they wish him to die.

All present are bound to secrecy, and the incantation lasts about an hour. Should they learn after a time that the man continues alive and well they explain it by saying that some one

has stopped the power of the bone. The art of "rain-making" in Australian tribes usually is of some of the wizards. I have elsewhere given as to other tribes. With the Dieri the procedure is different and is taken part in by the whole tribe or part of the tribe under the guidance and direction of the Kunkis or wizards. Mr. Gason has given the following of the rain-making ceremony.

The sky is supposed by the Dieri to be a vast plain inhabited by savage tribes between whom and the people of the earth no connection. Some of the departed inhabitants of the earth are supposed to live up there in hideous forms such as with feet. The Kunkis sometimes relate strange (night-mare) in the sky in the form of other wild fancies. But they do not pretend to see the sky other wise, or to hold any power over it.

ina, or the West

Milky Way is called Kai-iri, or the Creek, Orion's Belt is the Munkarawa, or the woman, and clusters of small stars are called Munkara Walkawura, or the young women.

The clouds are supposed to be bodies in which rain is made either by the ceremonies of the Dieri or of the neighbouring tribes, through the influence of Mura Mura. The clouds are called Thulara-paulka, or the body or substance of rain.

In times of severe drought I have witnessed them calling upon Mura Mura to give them power to make a heavy rainfall, crying out in loud voices the impoverished state of their country and the half-starved condition of the tribe in consequence of the difficulty in procuring food in sufficient quantity to sustain life.

During such drought, to which the Dieri country is much subject, the rain-making ceremonies are considered of great consequence, and I have witnessed them many times.

When it has been determined by the Great Council that such a ceremony is to be held [women, accompanied by their Piraurus, are sent off to the various sub-divisions of the tribe to summon the people to attend at some appointed place. When the tribe is gathered together they dig a hole about two feet deep, twelve long, and from eight to ten feet wide. Over this they build a hut of logs, filled in with slighter logs, the building being conical in form and covered with boughs. This hut is only sufficiently large to contain the old men, the younger ones sitting at the entrance or outside. This being completed, the women are called together to look at the hut, which they approach from the rear, then dividing, some one way and some the other, they go round until they reach the entrance, each one looking inside but without speaking. They then return to their camp distant about 500 yards.

Two Kunkis, who are supposed to have received a special ration from Mura Mura, are selected to have their arms disarmed. These are tightly bound near the shoulders to prevent refusal an effusion of blood. This being done all the men lie together in the hut, and the principal Kunki in the tribe takes a sharp flint and bleeds the two men inside the arm below the elbow. The blood is made to flow on the men sitting round, during which the two men throw handfuls of down into the air, some becoming attached to the blood on the men and some floating in the air. The blood is supposed to symbolise the rain, and the down the clouds. During these proceedings two large stones are placed in the centre of the hut. They represent gathering clouds, presaging rain. At this period the women again called to visit the hut and its inmates, and having seen in again retire.

The main part of the ceremony being now concluded the who were bled carry the two stones away some ten to miles and place them as high as they can in the largest tin about. In the meantime the other men gather gypsum, pour it fine, and throw it into a water hole. Mura Mura is supposed to see this and thereupon cause clouds to appear in the sky. Should these not appear so soon as expected, it is accounted by saying that Mura Mura is angry with them, and should then be no rain for weeks or months after the ceremony it is supposed that some other tribe has stopped their power.)

After the ceremony the hut is thrown down by the men, old and young, butting against it with their heads. The heavier logs which withstand this, are pulled down by all dragging them simultaneously at the bottom, thus causing them to fall. [The piercing of the hut with their head symbolises the piercing of the clouds, and the fall of the hut the fall of the rain.]

In the rare seasons which are too wet, the Dieri also have recourse to supplications to Mura Mura to restrain the rain, and Mr. Gason has seen the old men in a complete state of frenzy believing that their ceremonies had caused Mura Mura to send too much of it.

The foreskin, which is carefully kept from the Kuraweli, is also supposed to have a great power of producing rain. Council is always possessed of several of them if required. They are kept carefully concealed in a feather with the fat of the wild dog and of the Mr. Gason has seen such a parcel carefully The men watched with cat-like vigilance that no one near, and implored him not to divulge the contents of the parcel to them; all the time knowing that he was nearer than half a mile.

At this ceremony the foreskin is buried, its virtue being used. If no rain follows, the explanation of course is that the neighbouring tribe has influenced Mura Mura not to grant it to them.

During times of partial drought the Dieri do not feign possession of these foreskins, believing that water can cause rain to come before long. No matter what is said at this belief they were its immovability that the foreskin has a natural right to the rain.

After rain has fallen the Dieri are called Chint and are through the rain.

Some who are the rain.

scars are produced. The operation is not very painful, to judge by the patient joking and laughing all the time. The reason given for this practice is that they are pleased with the rain, and that there is a connection between the rain and the scars. Mr. Gason tells me that he has seen little children crowd round the operator, patiently taking their turn and after they have been operated on, run away extending their little chests and singing for the rain to beat on them. However, on the following day they were not so well pleased when their wounds were stiff and sore.

§ 10. *Gesture Language.*

The use of signs instead of speech is common among the Australian blacks, but the signs in most cases are not used to an extent sufficient to justify the expression *Gesture Language*, as applied to them. There are, however, certain tribes who have a complete system of these signs, and who use them habitually to a considerable extent. The Dieri customs, as I have shown in this memoir, made the use of gesture in lieu of words sometimes indispensably necessary; moreover, on many occasions where it is not thus necessary, it is, nevertheless, extremely convenient.

In those tribes as to which I have personal knowledge, I have found great difference in the number and variety of gestures used, and as a recognized means of communicating ideas between one individual and another. It must be, premised, however, that there are certain gestures which appear to be almost instinctively used by all people, whether savage or civilized; for instance, the beckoning with the hand towards oneself as meaning "Come here," or the waving of the hand as meaning "Go away," and so on. Such signs or as these will, I expect, be met with in all tribes, but in which I refer as being in greater or less use, are what perhaps not improperly term "conventional signs," gestures which have been adopted in lieu of speech, and which have become generally accepted in the tribe or in adjoining tribes as having a definite meaning, which would not be apparent without explanation to a person seeing them for the first time.

The variation in the frequency of use or number of signs can be best shown by three examples. The Kurnai have very few word-signs of any kind, and no gesture language in the sense in which I have above defined it. Among the few signs used by them were these:—

Owing to the disinclination which they feel in common with other Australian savages to name the dead, it was customary

a messenger
a somewhat

veying news of the decease of a person in
the following manner:—

arriving at the place, and meeting the person or person
whom he was sent, and being moreover painted with white
is an external indication of his errand, he might say
The father (brother, &c., as the case might require)
one (pointing out some individual present) is ———
would point with the forefinger either to the ground or to the
sky.

This gesture downwards or upwards with the finger was
conventional gesture meaning "dead."

The Woiworing tribe, according to the information given
me by the sole survivor, Berak, whose songs have been already
brought before the notice of the Institute in a previous commu-
nication, made much use of gestures, and from the exam-
ple which he has given me, and which will find their place
in my future memoir, they would even bear some comparison with
those of the copious gesture language of the Dieri.

Between these two examples would be placed the mountain
tribes of Maneroo, in which, so far as I can learn, gesture
language was used to a greater extent than by the Kurnai, but
to a less extent than by the Woiworing.

The first time that I saw some of the Cooper's Creek bla-
ck of gestures by them, and especially
h above the head, and the waving of
this I took at the time to be either
d to depart, but in reality they were
or inquiry as to our own movements.
time better acquainted with these tri-
e gestures were part only of a compli-
ment which a person might be interrogated
warned.

which I am now about to describe, I have
used. For others I have to thank the
correspondents, Mr. Gason, the Rev. H.
C. A. Meyer.

ear. Raise the face upwards slightly and say
ing, or point to the ear with the forefinger.
2. Look straight forward and nod the

with both hands. Clasp the hands together save
f the body, and give the face an expression

and some of the
and some of the
and some of the

Tribes of Central Australia.

Above. The head is bent back and the eyes look upward, the right arm being held higher than the head and above it (V.).

All gone away. The two hands being placed together horizontally in front, palms downward, separate them in a sweep towards apart. Then point to the horizon in the direction in which they are gone (V.).

Anger, sulky, obstinate, unwilling. Extend the lips outward in a pouting manner (G.).

Bad. Avert the face and screw up the mouth and nose as in disgust (V.).

Boomerang. Use the action of throwing this weapon (V.).

Before. The hand being held level to the waist, move it in front (V.).

Behind. The hand being held level to the waist, move it to the rear (V.).

Be quiet. Pass the right hand, open and palm inwards, in front of the face and a little distance from it (V.).

Be quick. Hold up the right hand somewhat high with the arm extended. Move it several times quickly downwards diagonally from right to left (V.).

Bring here. Extend the hand, palm upwards, fingers slightly curved as if to receive something. Then draw the hand towards yourself (V.).

Bring together, collect, heap up. Extend the arms with the palms of the hands towards each other, then draw them towards the body several times (G.).

Camp and sleep. Recline the head on one side upon the hand as if sleeping (V.).

Child. Place both hands behind the back as if carrying a (V.).

Clasp hands. Hold up the fore and middle finger of one hand, lightly snap the fingers and thumb (V.).

Draw. Draw the forefinger of one hand across the other hand

Here. Beckon with the right hand towards yourself (V.).

Here, come on. Extend the hand and arm straight out. Then draw the arm towards yourself. Repeating this action several times means "come quickly" (G.).

Danger—Be careful. The action as of catching a fly with the right hand close to the mouth, and squeezing the closed hand together there (G.).

There was a man of the Yantruwintz tribe, whom I frequently saw but whose name I never knew, excepting by the gesture which distinguished him, which meant "broken arm." It was made by striking the radius of the left arm with the open right hand, held vertically.

Pop. Turn the forefinger of the right hand round then point to the ear (G.).

Down here, this place. Extend the arm, slightly the hand open and vertical. Then make a scoo with the hands forwards (G.).

Dead—corpse. Bring the two hands together, the motion with them as if you were concealing something (G.).

Doctor—Wizard. Draw the head in between the hands, draw the forefinger down the nose, cross the arms breast, and then first stroke down each arm with the hand, and then pass both hands over the stomach (V.).

Drink. Set Water.

Disgust. Screw up the mouth and nose as if you were smelling something unpleasant.

Bat. Imitate the act of putting something into the mouth and then eating (V.).

Enough. Nod the head and then move the hand, palm towards, from the face. Or, pat the stomach gently a few times with the open hand, then move it several times from the stomach sideways (V.).

Enquiry—Who are you? What is it? Hold the front of and a little lower than the left breast, pat

from that position to one extreme of the forearm and this movement the hand is to palm upwards (H.).

hand out. The forefinger a push and other fingers closed so hands as high as the head as if strike with them in all directions (V.).

Lay hold of the hair of the head with the other imitate the action of sticking

the right hand near the face, palm opening. Then act as if throwing it away, arm outward a little bent, the hand is slightly curved, as in the act of

you—I understand. Extend the hand as far as possible, then stoop and reach as far and nearly reaches the ground. This

I don't see—I do not understand. Repeat

Halt—stop. The hand, palm downwards, is held a little in front, about breast high. The hand is now moved several times towards the ground. Or, embrace the body with the two arms, each hand holding the upper part of the other arm, and draw yourself together as if feeling cold (V.).

I or Me. Drawn a line down the face (down the nose), with the forefinger. Or, tap the breast lightly with the forefinger of one hand (V.).

Kill. Short blows are struck with one hand into the other hand. Or, clench the fist and strike with it several blows downward (V.).

Large. Clench the fist and strike downwards; for very large, strike a longer blow with more force (G.).

Long way—far off. Extend the hand quickly, at the same time bending the body forward and suap the fingers (G.).

Look out! Attention! Danger! Suddenly point in the direction of danger to which attention is to be directed (V.).

Man. Clutch the beard at the chin, and shake it once or twice (V.).

Man (old). Tap lightly several times on the top of the head with the hand (V.).

Mother. Take hold of the breast with one hand and shake it several times (V.).

No! Nothing! Shake the right hand, the palm downwards, the fingers loosely dependent and slightly separated. The action is that of shaking something from the fingers (V.), or, shake the head (V. and S.).

Peace. Stand erect and hold both hands high up above the head, palms outwards; or, hold up the right hand above the head, and shake it as in the sign for "nothing" (V.).

Request for or an offer of a female. The two hands being held in front, palms inward and slightly curved, close them together, the forefinger of the right hand passing between the forefinger and thumb of the left hand, and the left thumb between the forefinger and thumb of the right hand. The four fingers of the left hand close over the back of the right, and the little, ring, and middle finger of the right inside the palm of the left (H.).

Snake. The hand and arm extended. The hand is steadily moved from right to left several times (G.).

Silence—say no more. Stoop, and extend the arms full length outwards, the thumbs being turned inwards. This sign is used by the old men to the young men if they are misbehaving themselves, and it signifies "strangling" (G.).

¹ According to the Rev. H. Kempe, this sign is used just as I have given it above, and with the same meaning, by the Aldolings tribe at the Frishe River, South Australia, far to the north-westward of the Dieri.

Spear. An action as of holding a spear in the right hand and piercing something with it (V.).

Shield. The left hand is held clutched in front of the face and a little distance from it (V.).

Sword (wooden). The action of holding this weapon with both hands and striking with it (V.).

String (man's belt). Imitate the action of winding something round the waist, or, for string only, imitate the action of twisting fibres with the hand on the thigh (V.).

Surprise. Draw the lips together (G.).

Thirsty. Make the sign for water, and then make the sign for give (V.).

Tomahawk. An action as of chopping with the right hand (V.).

What?—What do you say? Throw the hand up higher than the head and then gradually let the palm fall back, palm upwards (G.).

Water (fresh). With the right hand held in the form of a scoop, the palm being towards the body, imitate several times the action of passing water into the mouth (V.).

Water (salt). Point with one finger to the mouth, touch the tongue with it, and then spit several times (V.).

Woman. With the forefinger of each hand describe a circle round the breasts (G.).

Woman (old). With the forefinger point to the breast. Then scribe a circle several times with it (V.).

Water (hot). Hold the left hand palm upwards, partly closed, resemble a bowl. With the other hand also closed bowl-like, make a motion as if scooping something out of the other hand (V.).

Fly. Make a movement with the hand as of catching a fly at a foot distant from the mouth (G.), or nod the head (V.).

§ 11. *Summary and Conclusions.*

The preceding sections render it now possible to summarise some of the conclusions at which I have arrived as to the Heeri tribe, always bearing in mind that it is the type others in the same part of the Australian Continent, and a slight variation of custom also represents communities a further distance. The facts now recorded as to these tribes show that aboriginal society as it exists in Australia is organised in a comparatively complete manner, and is not, as some

have supposed, but little more than the fortuitous aggregation of a number of human beings in a low stage. Their society is organized in a manner that is in full accord with their wants. It is based upon the relations of the sexes regulated according to their conception of morality. Their ideas of morality and our ideas of morality are not the same, but the moral sentiment is as strong in its way with them as with us.

The fundamental principle upon which their social structure has been formed is a prohibition against marriage, using that term in a wide sense, between those who are according to their ideas of near kindred. With them the conception of nearness of kin depends upon their view of the line in which descent runs, and descent in these tribes is counted through the mother. The Pirauru practice is clearly a form of group marriage, in which a number of men of one exogamous division cohabit with a number of women of the other division. The children of this group necessarily also constitute a group in which the members are brothers and sisters, and between them marriage is prohibited.

Here we find the idea which underlies the prohibition of marriage within the class division. All in it, in any given level of the generation, are brothers and sisters. The preceding level in the generation is the group-progenitor of the fraternal group, and this latter in its turn produces a group of children which stands in the filial relation to it. Here we have the actual fact as it exists in the Pirauru group, and this pictures to us the former condition of the class divisions, which condition has been fossilized, so to say, in the relationship-terms used.

The classificatory system of relationships, to use the term employed by the late Dr. Morgan, has been a great stumbling block in the path of many anthropologists, who in following their lines of enquiry have been guided by ideas in which they have grown up from infancy, as to the nature of the relations which exist between individuals. It has probably not suggested itself to them that since our system of counting relationships arises out of and is fitted to the conditions of our society, it might be that savages whose social conditions are so different may require some terms to define their relationships quite different in their character to those which we have. This error has probably arisen from considering a savage as a human being who in a rude exterior thinks much as does a civilized man. Such an idea cannot have a sound foundation. We see its results perhaps in the most marked form in the writings of Rousseau, but even late writers are not free from it.

The late Mr. J. F. McLennan, in his work on "Ancient Society,"

has argued backwards from the fragmentary and often imperfect accounts given by travellers to what he conceives must have been the origin of social institutions. He has regarded the matter not as one of the people would do whose customs he discusses, but as a civilized man seeing through civilized eyes and with a mind nurtured in the ways and thoughts of civilization.

The works of this author might have been left without further remark were it not that in a late edition of "Studies in Ancient History," no regard has been paid by the editor, Mr. McLennan, to the great mass of entirely new evidence which has been collected from the Australian field by the Rev. Lorimer Fison and myself, with the exception of a few remarks in the Appendix, to which I desire to draw attention. The first, which occurs at p. 311, runs as follows:—

"The theories of Mr. Morgan's ingenious disciple, the Rev. L. Fison (Kamilaroi and Kurnai), are all more or less founded on the fact that terms of relationship are in use among the Australians as terms of address. A correspondent whose means of getting knowledge are usually very imperfect, reports in answer to a question that certain rather large classes of people or whole populations, as the case may be, call each other brothers and sisters, or whatever other terms suit their respective ages, and Mr. Fison forthwith assumes that throughout these classes and populations there is full acknowledgment of blood relation-

cannot imagine anything more unfair than this statement, as it is the second passage which will be found at p. 315, claims this:—

Mr. L. Fison (Kamilaroi and Kurnai: Melbourne), while not putting the consanguine family on which Mr. Morgan's whole rests, professes himself a believer in punaluan marriage (punaluan family). But Mr. Fison's hypothesis, as stated work above mentioned, is not quite the same as Mr. Fison's 'intermarrying classes,' by the way, sometimes been taken for matter of fact; but they are a

is said, but it is not possible to pass over incidents. The author ignores the mass of evidence which has proved that the relationship-terms are not as his readers to believe, mere "terms" of the intermarrying classes are indisputable. It would be pleasant to be able to relieve it

the astounding statements which I have now quoted have arisen out of mere want of acquaintance with the evidence by Mr. D. McLennan. But I regret to feel that this belief can scarcely be held, and that these statements must be regarded as the arguments of a partizan who desires to fortify some position. If this is the case they may be allowed to fall to the ground without further concern.

I have already shown how the marriage status in these tribes is of two kinds. There is first, individual marriage, and second, group marriage. The former may be spoken of as Noa marriage, and the latter the Pirauru marriage. In the former, the woman becomes the wife of a certain man by being promised to him as a child by her father. In the ordinary course of everyday life his right to her is paramount, but under the Pirauru practice this sole right to her is overruled by the right given to certain other men by the Council of Elders of the Tribe. Thus although on ordinary occasions the individual right of the Noa prevails whenever he is present, yet on certain other occasions, especially ceremonial ones, the group right becomes paramount.

One question shows itself at once in regard to these two forms of marriage—Which is the earlier one? Has the Pirauru group usurped some of the rights of the individual Noa, or is the reverse the case. To ask the Dieri this question would probably fail in a reply, but some light may be found to illumine this obscure question by taking a general glance over the customs of Australian tribes. I have found after gathering data for many years that the various Australian tribes of which I have accounts, may be placed in a series arranged according to their social organization, and especially with reference to their status of marriage, and the relations of the sexes in them.

The result of such a classification would be that the Dieri would stand close to the one end of the series, and such tribes as some of the Kamilaroi of New South Wales and the Kurnai of Gippsland at the other. The former would be found to have a strongly marked form of group marriage existing at all times, and modifying the rights of the individual husband. The latter would be found to have individual marriage absolutely established, with the exclusive right of the husband to his wife unless relinquished by his voluntary act. But at the same time there would be found rare occurrences of extensive license, in which the features of the Pirauru practice can be distinguished.¹

¹ In the times when the Kurnai tribe still retained its ancestral customs, the occurrence of the *Aurora Australis* ("Mungan's fire"), caused a temporary promiscuity amongst those who might otherwise have stood in marital relation to each other, the strongly established individual marriage being for the time in abeyance.

Between these two extremes would be found tribes in which the occasions of license are more frequent, producing what seems to be a temporary reversion to group marriage, or the right of the group to certain women.¹

Such an examination would lead to the conjecture that the change in social organization has been in the direction from group marriage to individual marriage and not the reverse; in other words, that the Pirauru is the older form and the Noa the more modern. Moreover, if an examination is then made of the relationship terms, it will be found first, as I have shown in § 4, that they fall into a set of groups indicating certain individuals who all have the same relation to some one person. The nature of these relations is logically deducible from the fundamental law of the divisions of the community into two intermarrying exogamous classes, each of which constitutes a group organized after the Pirauru arrangement; a group, that is to say, wherein there is Pirauru marriage between certain men and women, of one level generation, and this group is the group progenitor of the next following one, and stands in a filial group relation to the preceding one.²

These group relationship-terms in no wise fit with the status of individual marriage, but they do so with that of group marriage, as is shown by Pirauru groups, which may be found in actual existence in the Dieri and other tribes at the present day.

Thus then we have two independent lines of enquiry which point each to the conclusion that group marriage was the earlier marriage status, and that the individual (Noa) marriage has been developed later, and has encroached upon the marital rights of the group. What the causes may have been which have led to this change of status as to marriage it is not easy to say; but it is open to strong and probable conjecture that one, and perhaps not the least active of all agencies, has been the rise and establishment of the right to give away a girl in marriage to some particular individual of the group which intermarries with the group to which she belongs. This is a very common custom in Australian tribes, and must have been a powerful agent in producing a feeling of ownership in the husband. The further rise of individual possession would also bring about a sense of individual paternity as regards the wife's children which not exist under group marriage, and which, as Mr. Gason does not exist under the Pirauru system.

Jan prau mada, &c. Kun Marbara tribe, Rockhampton

This man explains why

there is totam, who is older

than

the other

Qutad

is, a person calls on

"father"

he says

is, second

Queensland

of his father

to other

he Wakelura

Q. Mairah

When a community was gathered together at some one spot on ceremonial or festive occasions, group marriage would have full effect. When, however, the community was scattered over the tribal country, the tendency would be for the group to break up into lesser groups and even into couples. Here again would be a tendency under the impulse of individual liking to the rise of individual marriage.

Thus one is led to the conclusion that the earlier status of marriage in Australian tribes was the cohabitation in common of a number of men of one of the divisions with a number of women of the other division, and that there has been a gradual and probably a slow development of individual marriage. To those who regard the customs and the social organization of savages as a representation of the condition of the early ancestors of civilized peoples, the conclusions which are thus reached by a consideration of the socially lowest-standing Australian savages, must be of great significance as pointing to a yet earlier condition of society still lower in organization than that of the two exogamous divisions of a community, each living in a state of what may be called promiscuity as regards the "level in a generation."

Even in the tribes herein described there are traces of such absolute promiscuity as in the occurrences connected with the *jus primæ noctis* of the Kunandaburi and the license permitted on some few occasions by the Dieri even beyond their ordinary practice. Such occasional occurrence of extreme license on certain ceremonial occasions points, it may be thought, to a former general practice, and such a practice is indicated by some of the relationship terms.

If these views prove to be well grounded and become accepted by anthropologists, the conclusions reached by the authors of some standard works must necessarily be abandoned or modified.

One of the earlier works dealing with society in its primitive stages was that of Bachhofen. In *Das Mutterrecht* he evidently had got on the track of some truths. He saw dimly and as shadows the former existence of that social state in which descent is counted through women, and he built thereupon a vast and grotesque fabric of a primitive "gynocracy."

McLennan in his able work on "Primitive Marriage," reached a still higher point of view, and his horizon being proportionately enlarged, he came to the conclusion that the earliest form of society was one in which, owing to the scarcity of women, a number of men were compelled to marry one woman in common.

* Taking a generation to extend from grandparents to grandchildren.

He on this reached the conclusion that society commenced "Polyandry," and it seems that the foundation for hypothesis is in statements of travellers as to the ex customs of the Tibetans and Nairs.

Sir Henry Maine, in a series of remarkable works, threw flood of light upon the condition of society in the Aryan r at the dawn of history, and connecting with this the hist evidence of the Semitic race, he reached the conclusion t society originated in "Patriarchy," wherein the family wa grouped round and under the authority of the oldest ma descendant, who claimed the right to appropriate to himself number of women, thus producing "Polygamy."

It is evident that all these writers held a certain measure of truth, and from their individual standpoints the horizon appeared such as each described it. But their horizons were not all the same, and beyond them still extends the great unknown and silent part of man's social history. It seems to me that it is to the study of the beliefs and institutions and the myths o savages that he must now look for side-lights by means of which he may be able with more or less certainty to discern the features of the tracts lying beyond the ken of history.

This memoir proves conclusively that in Australia at the present day group marriage does exist in a well marked form; which is evidently only the modified survival of a still more complete social communism.

study of the tribal and social organization of the Anst and their beliefs and customs promises to yield the le results, and I may venture to claim that the resu idies which have been made upon these subjects by the v. L. Fison and myself have not been barren of results.

Explanation of Plate I.

Sketch-map of part of Central Australia, showing approxi- mately the geographical distribution of the Dieri and kindred tribes referred to in the preceding Paper.

ANTHROPOLOGICAL MISCELLANEA.

ANNUAL REPORT of the BUREAU of ETHNOLOGY, SMITHSONIAN INSTITUTION, 1883-4, 1884-5.

The Smithsonian Institution has issued simultaneously the fifth and sixth Annual Reports of the Bureau of Ethnology, bringing the publication up to the year 1885.

It is needless to say that these handsome volumes contain much interesting and important matter. American anthropologists have a wide field, and are not so restricted in means as their English brethren; consequently, their researches are more thorough, and their reports are minute and exhaustive.

In the present volumes we get first, the reports of the director with regard to the work of the year, both in the field and in the office, with the papers illustrating the work of the explorers. Mr. Cyrus Thomas and his assistants have been engaged in exploring the mounds and other ancient works of the United States, east of the Rocky Mountains, and in so doing have made some very interesting discoveries; chief among which may be noticed several plates of copper very thin and evenly wrought, upon which are impressed, as if by machinery, figures bearing a striking resemblance to those found in the Mexican and central American codices. These remarkable works of art were found in what is known as the Etowah group of mounds in Northern Georgia, in which were also found some of those curious engraved shells described and figured in the second volume of the same publication. Of these copper plates the director remarks, "The skill and art manifested in their manufacture are far in advance of anything hitherto discovered appertaining to the mound builders, and raise a serious doubt as to their aboriginal origin," whilst the conditions under which they were found "clearly indicate that they were placed in the mounds when the latter were built, and not subsequently."

The conclusions at which Mr. Thomas arrives in consequence of these and other discoveries are:—

1. That different sections were occupied by different mound building tribes, in much the same stage of culture, but differing in habits and customs.
2. That each tribe adopted several different modes of burial, depending probably upon the social condition, position, and occupation of the deceased.

3. That the custom of removing the flesh from the bones before final burial prevailed extensively, and the bones of the common people were gathered in heaps promiscuously, and a mound raised over them.
4. That, although some religious ceremony took place in which fire played a prominent part, there is no evidence of human sacrifices.
5. That there is nothing to show that the mound builders had attained a higher degree of culture than that of some of the Indian tribes at the first arrival of Europeans.
6. That mounds were erected over the dead in several localities in post Columbian times.
7. That the mound building age could not have continued longer than a thousand years, and hence its commencement probably does not antedate the fifth or sixth century. That nothing has been found to justify the opinion of their great antiquity.
8. That all the mounds examined are to be attributed to the tribes found inhabiting this region and their ancestors.

The director, whilst endorsing the views of Mr. Thomas in most respects, justly points out, with regard to the seventh proposition, that "an attempt to fix the duration or beginning of the mound building period, is inadvisable in the absence of evidence not yet obtained, and which may never be forthcoming."

Although Mr. Thomas believes that the copper plates above referred to, were not the work of pre-Columbian, Indian, or Mexican workmen, the work bearing evidence of having been done with hard metallic tools, he fails to give any European or Asiatic

as he observed that these works are found only in Northern and in Northern and Southern Illinois.

very curious discovery made by Mr. Mindesleff whilst ing a pueblo in Arizona must be noticed.

marginal room in the pueblo was found "a circular doorway, made of a single slab of sandstone, pierced by a large round hole."

This would appear to bear a close resemblance to the Cornish Men-an-tol, but, as it is not figured, it is impossible to say more.

The narrative of Mr. Charles C. Royce relating to the Official Relations of the Cherokee Indians with the Colonial and Federal Governments, although containing much important historical matter, illustrated by excellent maps, will not greatly interest English readers, except as illustrating the migrations of a nation in modern times; but the paper called "A Mountain Chant," being a description of a Navajo ceremony, will delight the Anthropologist and Folk-loreist. It would be impossible in this short notice to give any idea of this very long and interesting paper, containing many descriptions of dances and ceremonies as performed by the Navajo. The work is from the original and is illustrated.

many excellent engravings and coloured plates. The dances appear to be religious medicine dances, undertaken primarily for healing of the sick and invocation of the gods. The points of resemblance to the Australian corroborees are numerous; the use, also, of that widely distributed instrument, the bull-roarer or groning stick, which in this case must be made only of the wood of a pine which has been struck by lightning; the painting of the body in black and white, the great plumed arrow, the talking sticks, the plants used, and the songs and incantations, are all of very great interest; and it is not a little curious to find in the myth a story resembling that so frequent in our own fairy tales, in which the hero is invited to eat and drink, but receives a friendly warning not to do so, lest he should turn into some animal and never regain his own form. The four great pictures are remarkable and very instructive as regards the symbolism of the Navajo Indians, which perhaps may help to interpret some of the Mexican paintings. The appearance in one of them of the *swastika* is also of great interest.

The remaining papers in this volume are: one on the Seminole Indians of Florida, by Clay Macaulay, with illustrations representing the people and their costumes, their architecture, industries, &c., all which deserve careful study; and lastly, "The Religious life of the Zuni child," by Mrs. Tilly E. Stevenson, which may be regarded as supplementary to the papers on the Zunis by Mr. Cushing, which have appeared in former volumes. This paper is also beautifully illustrated in colours, and contains a short account of Zuni mythology, birth customs, and initiation ceremonies.

In the second of these volumes the paper which will be read with the greatest interest is that upon "The Central Eskimo," by Dr. Franz Boas, which, taken in connection with those of Dr. Rink which have appeared in the Journal, may be said to give an exhaustive history of these very interesting people. The plans of houses, the sledges, boats, and weapons, and the tattoo marks of the women, are well illustrated; whilst the social life, the games, the religious and superstitious ideas of the people, are fully described, and the comparisons between the traditions of the Central Eskimo and those of the tribes of Greenland and Alaska are instructive. Dr. Boas also gives a number of Eskimo sketches, and songs with the airs to which they are sung.

The paper by Mr. Holmes on "Ancient Art of the Province of Chiriqui, Columbia," is a very valuable addition to our knowledge of a land and people very little known to Europeans. Several curious problems are presented by the objects found in the graves in this region, which appear to have been made for mortuary purposes, and not to consist, as is usually the case, of articles used by the deceased or his friends. Although they appear to have been skilful metal-workers, and even understood the art of coating it with a thin plate of gold, they do not seem to have used it tools. Their pottery was very elegant, resembling in form

the archaic Greek vases, but presenting also many good animal forms, some being painted in geometrical patterns.

Mr. Holmes contributes another interesting paper to this on "Textile Art in its relation to the Development of *Fort Ornament*," well illustrated. Nothing in modern work comparable with an ornamental fringed mantle from an Peruvian tomb figured by Mr. Holmes, in which rows of faces are represented on raised rosettes surrounded by a and terminating in a fringe of various colours, twenty inches composed of tassels of various sizes, all of fine silky wool, and a rich crimson colour. Mr. Holmes derives the arabesque style of ornamentation from the art of the weaver. How far he has proved his theory, readers of the paper will be able to judge.

The remaining paper on "Aids to the Study of the *May Codices*," by Cyrus Thomas, is one more for the student than for the general reader. If Mr. Thomas can succeed in deciphering the meaning of these Maya hieroglyphs, he will render a service to American archaeology which may compare with the work of Egyptologists and readers of cuneiform. His present conclusions are that the Maya characters have grown out of a pictographic system, similar to that common among the Indians of North America.

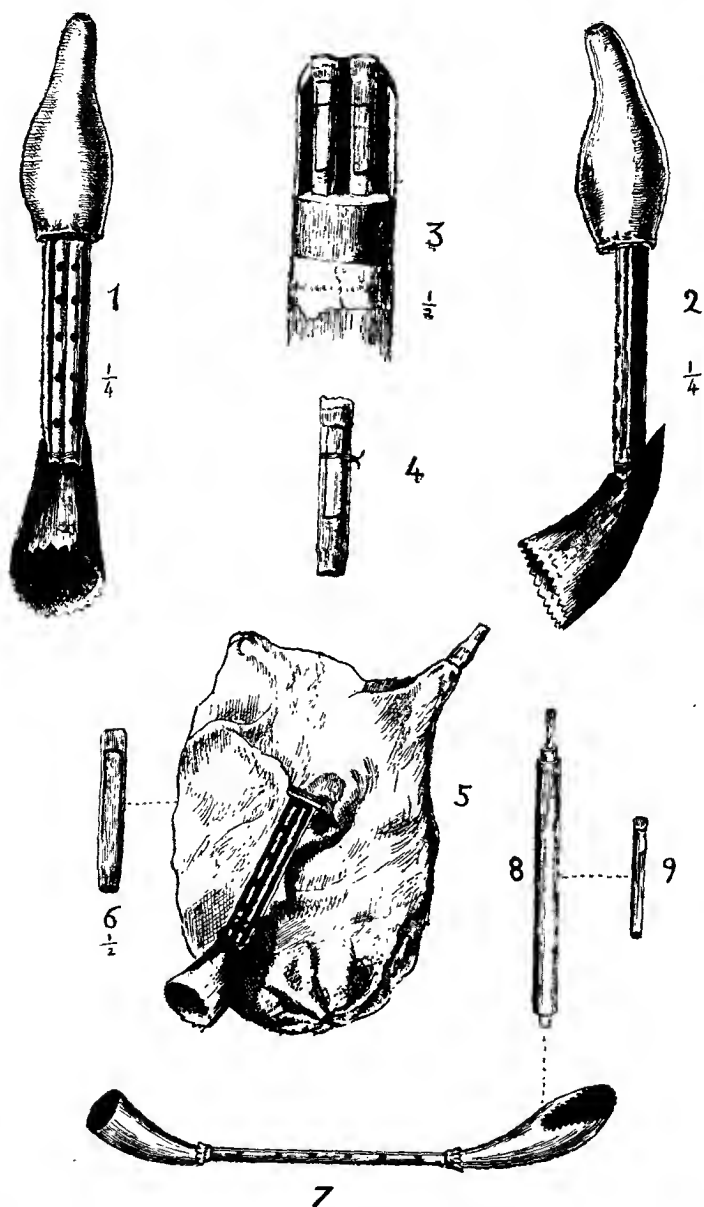
Undoubtedly the two volumes before us contain an immense amount of information on a variety of topics, and will afford the student much food for thought, and probably not a little controversial matter; but it is in chasing the ocean of controversy that Truth comes to the surface.

A. W. BUCKLAND.

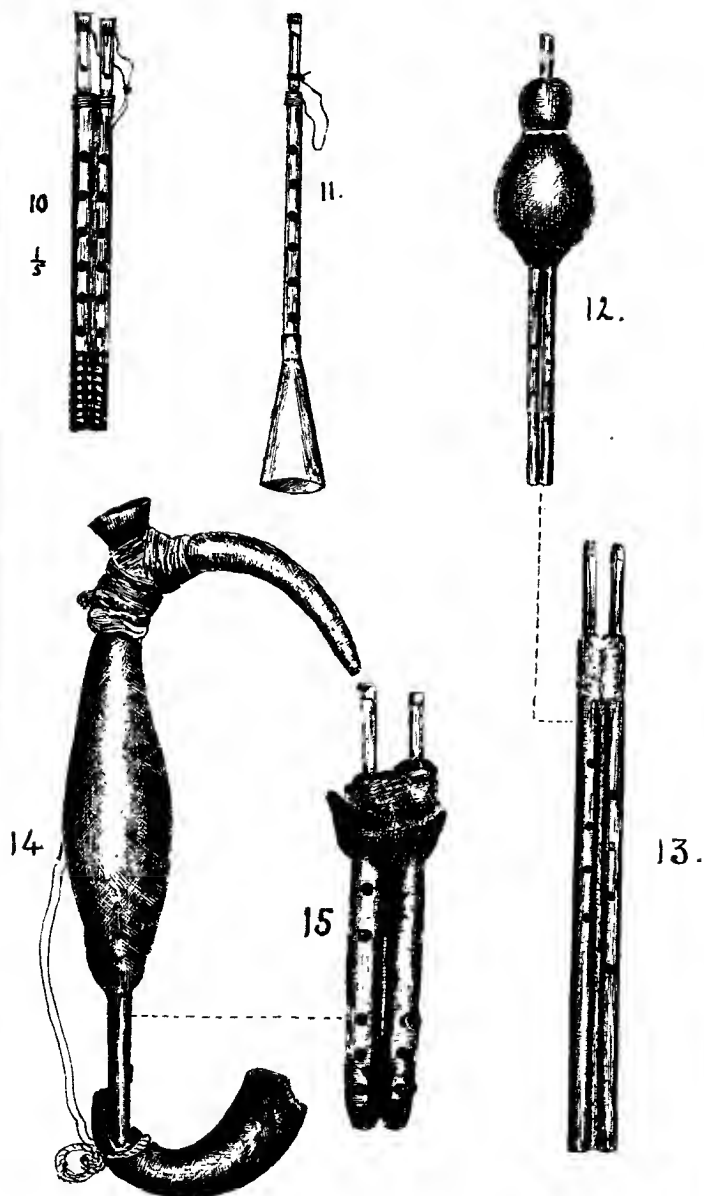
THE BRITISH ASSOCIATION

The Sixteenth Annual Meeting of the Association will be held at Leeds, commencing on September 3rd, when Professor Flower, the President, will be succeeded by the President-elect, Sir Frederick Abel. In Section H, devoted to *Anthropology*, the President will be Dr. JOHN EVANS; the Vice-Presidents, Professor Cunningham and Mr. Radler; and the Secretaries, Mr. Bloxam, Dr. C. M. Chadwick, Dr. Garson, and Mr. Ling Roth. Papers to be read should be sent in not later than August 6th, addressed to "The General Secretaries, British Association, 22, Albemarle Street, W."





HORNSPIPE AND BAGPIPES, GREEKIAN ARCHIPELAGO; AND PIBICORN FROM ANGLESEA.



ARAB REED PIPES, DECKHAN PIPES, AND HINDOO HORNPIPE.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

MARCH 11TH, 1890.

JOHN BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the Author.—*La Formule de Reconstitution de la Taille d'après les os longs.* Par M. Topinard.

— *Le Canon des Proportions du Corps de l'homme Européen.* Par M. Topinard.

— *La Stéatopygie des Hottentotes du Jardin d'Acclimatation.* Par M. Topinard.

— *Mensuration des Crânes des Dolmens de la Lozère d'après les registres de Broca.* Par M. P. Topinard.

— *Un mot sur l'histoire de l'Anthropologie en 1788.* Par M. Topinard.

— *Essais de Craniométrie a propos du crane de Charlotte Corday.* Par le Dr. Paul Topinard.

— *Présentation de quatre Boshimans vivants.* Par M. Topinard.

— *L'Anthropologie de Linnée.* Par Le Docteur P. Topinard.

- From the AUTHOR.—*Les Ossements de Spy et l'Ethnographie de la Tunisie. Rapport sur le concours du prix Broca.* Topinard.
- *L'Anthropologie dans ses rapports avec la Zoologie.* Dr. Paul Topinard.
- From the GERMAN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—*Archiv für Anthropologie.* Band Vierteljahrsheft, 1, 2.
- From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE ETHNOLOGIE UND URGESCHICHTE.—*Zeitschrift für Ethnologie.* 1889. Heft 4, 5.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—*The Scottish Geographical Magazine.* Vol. vi, No. 3.
- From the CLUB.—*Proceedings of the Berwickshire Naturalists' Club.* 1888. Part 2.
- From the INSTITUTE.—*Transactions of the Wagner Free Institute of Science of Philadelphia.* Vol. 2.
- From the SOCIETY.—*Proceedings of the Royal Geographical Society.* Vol. xii, No. 3.
- *Journal of the Society of Arts.* Nos. 1945-1946.
- *Journal and Proceedings of the Royal Society of New South Wales.* Vol. xxiii. Part 1.
- *Catalogue of the Scientific Books in the Library of the Royal Society of New South Wales.* Part 1. General Catalogue.
- *Bulletin de la Société Impériale des Naturalistes de Moscou.* 1889. No. 3.
- From the EDITOR.—*Nature.* Nos. 1061-1062.
- *Science.* Nos. 368-369.
- *Revue Scientifique.* Tom. xlv. Nos. 9-10.

EXHIBITION of TWO SKULLS from a CAVE in JAMAICA.

By PROF. W. H. FLOWER, C.B., F.R.S., &c.

MR. W. FAWCETT, Director of the Botanical Gardens of Jamaica, when on a recent visit to this country, brought with him two crania belonging to the Kingston Museum, which he has permitted me to exhibit to the meeting of the Institute before they are returned. The only history which Mr. Fawcett could give of them is that they were found by the Hon. Gen. Shirley in Pedro Bluff Cave, Jamaica. It would be desirable, if possible, to have further information of the circumstances under which they were found, especially whether they were associated with other bones or objects by which their age could be identified. As the shape and colour of the two are entirely different, it is probable they came into the cave at different times and had there under different conditions.

The cranium, of which I shall speak first, is of great interest, as it is undoubtedly that of one of the aboriginal races of America, and therefore in all probability one of the long vanished people who inhabited the island of Jamaica before the European conquest, and of whom we have such scanty traces remaining. It is that of a person, probably of the male sex and beyond middle age, many of the teeth having been lost during life, and the sagittal and lambdoidal sutures being partially obliterated; the mastoid processes, glabella, and supra-orbital ridges are strongly marked. The cranium has been artificially deformed during infancy in a very marked degree, according to the fashion most frequent along the whole of the west coast of America, *i.e.*, by depression of the frontal region, or fronto-occipital compression, with corresponding lateral expansion. This form of deformation is known to have been practised among the inhabitants of the West Indian Islands. In all essential features, the skull is purely American; indeed I see no characters by which it could be distinguished from one of those, now so abundant in collections, obtained from the old burying grounds on the sea-coast of Peru. The greatest length is 172 mm., the breadth 15 h., the height (basi-bregmatic) 124, giving a breadth-index of 895, and a height-index of 721; but their dimensions and indices are of course materially modified from the original by the artificial deformation. The face is remarkably characteristic, especially the high orbit (breadth 36, height 37, index 1028), and the form of the nasal bones, which, although not complete, still show the form so distinctive of the high-bridged American nose. The nasal height is 53, breadth 26, giving an index of 491. The basi-nasal length is 93, but the basi-alveolar length, and consequently the gnathic index, cannot be taken owing to the loss of the front teeth and absorption of the alveolar margin. The palate is broad and rounded, but for the same cause its dimensions cannot be given.

The second cranium presents a remarkable contrast, and is equally characteristic of another race which at a later period formed the mass of the population of this island, the African negro. It is not stained the same yellow colour as the other, but retains the natural greyish white of the bone tissue. It is that of a much younger person, not much above 20 years of age, as, though the basi-cranial suture is closed, all those of the upper surface of the cranium are open, and the third molars have evidently but recently come into place and are quite unworn. Its general characters are feminine. The nasals are small and flat. The nasal opening is not so wide as in negroes generally, and the nasal index consequently lower, but the inferior margin is characteristically rounded, and the nasal spine feebly

developed. There is marked alveolar prognathism. forehead is smooth, with scarcely any supra-orbital rid glabella. The length of the cranium is 175 mm., the br 129, index 737; the height (basi-bregmatic) 133, index 761 orbital breadth 38, height 34, index 895; nasal height breadth 23, index 489; basi-nasal length 96; basi-al length 99; gnathic index 103.1. The cranium presents no traces of artificial deformation.

DISCUSSION.

Mr. BOUVIER PUSEY, referring to a suggestion that one of the skulls might be that of a Carib, called attention to the distinction between the Caribs on the one hand and the aboriginal race of Jamaica and the other large West India Islands on the other. He also expressed the opinion that the Caribs were not altogether extinct in St. Vincent and one or two of the other smaller Islands.

Dr. SUMMERHAYES said that he wished to corroborate what the last speaker had stated with regard to the Caribs. These people, variously termed *Galibis*, *Caraihs*, *Caripunas*, and by a Spanish corruption of the word "*Canibales*" (whence our *Cannibals*), were simply a branch of the great "Tupi" family of Brazil—to whom they were related somewhat as the Northmen, Ostmen or Danes were to the Gothic tribes, who overspread Europe on the decay of the Roman power. The Caribs were a confederacy of pirates and slave hunters resembling the Massai of East Africa or the Saxons of Early English History rather than the peaceful traders of Bokhara to whom Humboldt likened them. They had the upspringing nasal bones, pointed out by Professor Flower in the skull before the meeting, and not the depressed nasals which were the common property of the Arowaks and the other unwarlike tribes of South America, with the Mongols of Asia. He could not explain the unusual association with a (female) negro skull, which he would like to regard as that of a primitive negroid, such as Quatrefages describes as existing in various parts of the American Continent, which according to him presents the same mixture of white, black and yellow races as Asia, only the yellow or Mongoloid type vastly predominates. The best account of the Caribs is to be found in the *Ethnography of Martius*, who in association with S. has made a exhaustive study of the South American races. The aborigines of the Antilles were soon killed off, and re

MANNERS, CUSTOMS, SUPERSTITIONS, and RELIGIONS of SOUTH AFRICAN TRIBES.

By Rev. JAMES MACDONALD, Reay, Caithness, N.B.

*(Second Paper.)*¹

At the beginning of the present century there was but little known of the Zulu tribes who inhabited the coast region between the Tugela and Delagoa Bay. Few Europeans had visited the country, and the little intercourse between the natives and men of civilized nations consisted of occasional formal meetings for the purposes of barter. The natives brought down ivory and skins, and in exchange for these received from the traders such articles of European manufacture as they required.

About 1793 Dingiswayo, heir to the Abatetwa chieftainship, came as a fugitive to the Cape Colony. In 1797 and 1799 military expeditions were sent against various frontier tribes. The young chief was not an idle observer of passing events, and he seems to have taken the lessons of the expeditions deeply to heart. He observed that a small body of trained men could spread confusion and dismay through thousands of untrained savages, and resolved that, if he ever saw his native land again, he would have a standing army as the leading feature of his government.

On hearing of his father's death, Dingiswayo sent a message to his tribe that he intended to return and claim his rights. The message was followed by the news of his approach, and it was announced that he was mounted on an animal of wonderful strength, beauty, and speed. The Abatetwa had not yet seen a horse, and the *éclat* of their chief's return was heightened by his making his appearance on the strange animal. No sooner was he established in power than he organised a standing army on the European model.

In the meantime, Tshaka, the heir of Zululand, had to flee for his life from his father's ire, and sought an asylum with his kinsman, Dingiswayo. Under him he received that military education which has made his name famous.

When Tshaka became ruler of Zululand, he divided the kingdom into military districts, and placed his soldiers under a most rigid system of discipline. They could only marry with the king's consent, and any duty laid upon them they had to

¹The first paper appeared in the "Journ. Anthropol. Inst.," vol. xix, No. 3, 14.

attempt, however hopeless its nature might be. There is probably never been a more perfect system of discipline than that by which Tshaka ruled his army and kingdom. A review or order might be given, in the most unexpected manner which meant death to hundreds. If the regiment hesitated to remonstrate, so perfect was the discipline and so the jealousy that another was ready to cut them down. A warrior returning from battle without his arms was put to death without trial. A general returning unsuccessful in the purpose of his expedition shared the same fate. Whoever displeased the king was immediately executed. The traditional courts practically ceased to exist so far as the will and action of the tyrant was concerned. Such was the origin of that military organisation with which, for over a quarter of a century, he carried on a war of extermination against surrounding tribes, and devastated hundreds of miles of territory. This it was which gave colour to so many Zulu institutions, and made them such formidable foes when Lord Chelmsford's ill-starred expedition was crushed and almost annihilated under the heights of Isandhlwana.

One illustration of the fidelity demanded of Zulu soldiers will suffice: Among the bravest generals was one Mapopoma. His mother, Godase, and his brother, Sigwebana, fell under the king's displeasure, and their execution, as well as that of their immediate retainers and attendants, was entrusted to Mapopoma. Sigwebana was a general favourite, and got a hint of his danger.

He immediately fled with his mother, but was intercepted by his brother with a detachment of soldiers before reaching the ngala. A desperate conflict ensued, and Sigwebana with a few followers cut their way through and escaped. Godase returned and fled for safety to an American mission station. Mapopoma reported the matter to the king, and asked for further orders. The answer was laconic, "All must die." The detachment then marched to the mission, and regardless of Mr. Groute's protest, entered the house and dragged her out. She knew her end was come, and with all her native dignity followed the soldiers without a word, and at a short distance from the house suffered a cruel death. Beyond this barbarity could hardly be carried, and we do not wonder that Tshaka, in constant dread of

his sons killed in infancy lest he be that disaffection kingdom. The without cannon day after day execution

her the hand of the son she had so carefully reared, and who, as one of the king's generals, was the pride of her old age.

Apart from the military organisation, the customs of Zululand are in no essential from what is common to all the tribes.

Men are regarded with the same superstitious dread as they are farther south. If an owl, buzzard, turkey, or red-breasted eagle settles on the roof of a house, it is supposed to be sent by a malignant person who has the power of witchcraft, and that it is the harbinger of evil. The magician is called, and he purifies the place by sacrifice and sprinkling. The eagle referred to is sacred, and is never killed, though it carries away large numbers of domestic chickens and often kills young lambs and kids. The person killing one would become bald, and would be pursued by an evil fate to the end of his days. If a dog jumps on the roof of a house or lifts its leg against the doorpost it is a warning of coming calamity, and a magician is called. In this case the ordinary sprinkling is not performed. He chews certain roots, and filling his mouth with water, spits it about the door, roof, and walls of the hut. This is sufficient to avert any evil consequences. If a tree is struck by lightning the magicians dig it up by the roots and burn it. The ground is sprinkled as in the case of dwellings, but no sacrifices are offered, and there is no dancing. If a Pondo woman sees a spotted water-snake when fetching water, it is uncleanness to her. She drops her water vessel, and returning home, sits down in a corner of the hut with her face in her hands. When spoken to she makes no sign of having heard. If asked what is the matter she continues in the same attitude, and makes no reply. It is then known that she has seen the *inhlata*, and the witch doctor is called. On his arrival he performs mystic rites after which he purifies not only the woman but the house, cattle-fold, and all the surrounding premises. There is no sacrifice, but it is customary to kill a beast in honour of the doctor's visit. Divination by lot is never practised among the coast tribes, all revelations being made directly to the magicians by the spirits in dreams and visions. Basutos divine by means of dice in many of their daily affairs and regarding the fortunes of war. Sleep is not forbidden except in connection with initiatory rites when young men are entering on manhood.

Guilds and Lodges.—Of separate religious and political associations we find little trace except among the hill men. The jealousy of the military organization or caste would prevent the existence of such among the Zulus, and the domestic life of the east natives is so completely under control of the magicians, no form a distinct order, that no other lodge or guild can be to exist as a separate institution. Among the mountain

tribes there are ceremonies by which youths are for a secret guilds or lodges with pass words.¹ The members of the lodges are bound never to give evidence, under any circumstances, against one another. The rites of initiation are profoundly secret, but certain horrible customs performed on these occasions have become known. One of these customs is that of infusing courage, intelligence, and other qualities. Whenever an enemy who has acted bravely is killed, his liver, which is considered the seat of valour; his ears, which are considered the seat of intelligence; the skin of his forehead, which is the seat of perseverance; his testicles, which are the seat of strength, and other members, each of which is supposed to contain some virtue, are cut from his body and baked to cinders. The ashes are carefully preserved in the horn of a bull, and being, when required, mixed with other ingredients into a kind of paste, are administered to the youths by the tribal priest as a kind of bolus. By this means the virtues of strength, valour, and intelligence of the slain are imparted to them.

Intonjane.—In a former paper the rites of initiation into manhood were described, but consideration of the corresponding rites in the case of young women was deferred. These rites have such an important bearing on the domestic life of the people, and are besides so peculiar, that a somewhat detailed account is necessary. I am not aware that any reliable account of the ceremonies now under consideration has been published, and this is easily accounted for. Europeans are never, under pretext, allowed to witness them, and natives rarely give a full and satisfactory description of what takes place. Only by comparing the accounts given by many different individuals can one arrive at a satisfactory conclusion, and feel that he has learned all the essential features connected with this period of a young woman's life. The subject is moreover a delicate one, and hardly suitable for the pages of any other than a scientific journal.

When a girl arrives at the age of puberty—first menstruation—a beast is killed as a thank-offering to the ancestral spirit and high revel is held for several days. Dancing is continued night till those engaged in it are exhausted, or daylight dawns. Music is supplied by a drum beaten on a dry hide and takes no part in the rejoicing. Ut and small pipes which it is customary

collect and remain as her attendants till the ceremonies are concluded. They begin by collecting a quantity of dry grass and covering the floor of the hut with a thick layer of it. They, after this is done, occupy the outer or larger portion, and there they sing day and night, ceasing only when quite overcome with sleep, and then only for a very short interval. No married man may come near the dwelling, and should anyone do so he is beaten away by the girls, who attack him most viciously with sticks and stones. During her seclusion the neophyte must on no account see or address any man, married or unmarried. She can address no one, not even the girls in attendance, except when absolutely necessary, and then in a whisper. She does no work, and must not converse about any of the ordinary affairs of every day life. Should she want food or drink she must not call her attendants, but tapping gently on the wall of the hut, attract their attention, and then in a whisper communicate her wishes. She must not anoint her body with fat as usual, and her hands and face may not be washed on any account. Bathing is out of the question. No bed clothing is allowed, and her garments are not changed till she resumes her ordinary mode of life.

After a few days and when dancing has been discontinued, young men and girls congregate in the outer apartment of the hut, and begin singing, clapping their hands, and making a grunting noise to show their joy. At night-fall most of the young girls who were the intonjane's attendants, leave for their own homes for the night, to return the following morning. Thereafter the young men and girls, who gathered into the hut in the afternoon, separate into pairs and sleep together *in puris naturalibus*, for that is strictly ordained by custom. Sexual intercourse is not allowed, but what is known as *metsha* or *ukumetsha* is the sole purpose of the novel arrangement. *Ukumetsha* may be defined as partial intercourse.

Every man, who sleeps thus with a girl has to send to the her of the intonjane an assegai; should he have formed an attachment for his partner of the night and wish to pay her his addresses he sends two assegais. The second assegai is either returned after a few days as a sign that his advances are not acceptable to the girl's own father, or it is retained as a pledge of good faith. A breach of this promise, though on account of other domestic arrangements he may not be able to marry her as his first wife (his father settles that) is highly displeasing to the ancestral spirits, and they punish him in his person and property till appeased by costly sacrifices. The more assegais a father receives the greater man he is, and they are shown him pride, as evidence of the honour done to his daughter, and esteem in which he is himself held.

After a farther period of seclusion, extending to about a week in all, the intonjane comes out of her apartment running as fast as she can, makes for the nearest stream or followed by her attendants. She makes the first plunge then they gambol and play in the water and on the nearly the whole day. While they are at the river the hut is removed from the hut and burned, to show that now intonjane is clean and that she may associate with others. The hut is carefully cleaned and smeared over, both floor and walls with fresh cow dung. Towards sunset the girl returns, followed by her companions singing and dancing. On entering the hut she sits in the middle of the floor, and her attendants, standing in a circle round her, sing a song peculiar to the occasion. This is the sign for the "wise" women to enter and greet the girl. This they do by beating the tips of her fingers with little wands and pronouncing certain words and forms of congratulation. She is next conducted outside the hut and asked to lie down on a mat prepared for her. The old women form a circle round her, and the men of the village stand a few paces apart. One by one the women kiss, first her cheeks, and after that her *mons veneris*, *labia*, and *nymphae*. Two of the wisest are deputed to examine the condition of the vulva and adjacent parts, and after they have performed a slight surgical operation she returns to her hut, now a woman.

The girls who were her attendants are now called and examined by the women. Should any of them be found not to be *virgo intacta*, they spit upon the labia and cry to the men who are standing by, "Here is a *thing*. We are spitting upon it." The men then approach and spit upon her in a similar manner. The women thrash her with saplings, and each man as he spits says, "Thrash on: she is foul." After being thus insulted and beaten, she is dismissed to her home in disgrace. The girls who are pure return to the intonjane, and after much merry-making the party disperse to their respective homes.

If menstruation should commence for the first time while a girl is walking, gathering wood, or working in the field, she runs to the river and hides herself among the reeds for so as not to be seen by men. She covers her head carefully with her blanket that the sun may not shine on it and she remains there until the result from her

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days, when they are not allowed to see or touch cow dung, which is in universal use for smearing floors after being swept. Should a man touch a woman during the period, his bones become soft, and in future he cannot take part in warfare or any other manly exercise.

Murder.—The relatives of a murdered man are not allowed to avenge his death, nor may they employ others to do so. Their wrong must be redressed after trial before the paramount chief and his council of state. To avoid feud and bloodshed, the respective parties to the case are strictly forbidden to go near one another's dwellings till after the case is finally disposed of. The chief, through the executive, takes all the necessary steps for a full inquiry and the attendance of all necessary witnesses. If the accused is found guilty the verdict may be manslaughter or murder. In the former case punishment is invariably by fine, which goes to the chief. When once the fine is paid the prisoner is free, and takes his place in society as if nothing had happened. The chief makes what compensation he deems right to the relatives of the murdered man, often sending only one cow. Should the verdict be premeditated murder, punishment is ordinarily by fine, but in this case a man may be "eaten up"; that is to say, the whole of his property, including his wives and children, may be confiscated, and he himself be deprived of his rights as a tribesman. This reduces him to the condition of a wanderer, and is equivalent to expulsion from the territory. The chief may restore his wives and family after a time, if that is deemed desirable. The weapon used is sent to the relatives of the victim, who, while they retain it, are supposed to be exempt from any further similar calamity. Among the coast tribes a murderer is not unclean in the ceremonial sense, nor does he undergo any process before being re-admitted to society. I am not certain regarding the custom in this particular among the hill tribes, but have heard it stated that he must pass through the hands of the priest. Murder is not a common crime, but manslaughter, in village brawls, is a thing of constant occurrence.

Doctrine of Souls.—Of all the subjects connected with savage and semi-savage life in Africa, the doctrine of souls is that which it is most difficult to understand fully and state clearly. After years of residence, and daily intercourse with the people, new phases of that mysterious region, the spirit world, present themselves, and the *corrections* of one's early and crude conclusions have to be re-corrected, and often new conclusions formed. Facts regarded as fixed and permanent, and accepted as such by one writer after another, have to be discarded as merely local or tribal, or even sub-tribal. From magicians belonging to the same tribe statements are heard differing so widely that it is

impossible to reconcile them, and often difficult to trace to a common origin. Each magician gets his communications directly from the spirit world, and delivers them in the form of riddles or dark parables. If he has attained to eminence they are handed down by oral tradition, and his successors interpret his sayings as suits their own purposes. These traditions accumulate from one generation to another, and become in many cases a hopeless mass of confused and meaningless so-called revelations. There are, however, certain outstanding ones accepted by all. To these we must confine our attention.

All human beings have souls, and these are not supposed to be entirely confined to the body. A man's soul may be spoken of as occupying the roof of his hut, and if he changes his residence his soul does so at the same time. This is, however, but a loose and indefinite way of expressing the belief that man's spirit may have influence at a distance from the place where he is himself at any time. There is a medicine in use among magicians which when taken enables a man to influence another at a distance by simply "willing." In the court at Tsolo, before J. P. Cumming, Esq., an important trial, which turned a good deal on the power of witchcraft, took place a few years ago. A witness declared that a man, after partaking of a certain medicine of which he produced a quantity, could influence any woman to come straight to the place where he was if he only knew her name, by "willing" to have her; his spirit went to her and called her, and no one can resist when called by a spirit. At the moment a young woman happened to be passing along the road opposite the court room windows. Mr. Cumming told the witness her name, and asked him to swallow a quantity of his medicine, and bring her up to the court. This challenge was too pointed, and was declined on the ground that the medicine did not act if there were any present who did not believe in its virtue, and the magistrate being an unbeliever, the experiment could not succeed. After that the case proceeded on other lines.

The whole spirit world is one of haze and uncertainty. No definite description of it can be got from anyone. A common word in use to express their ideas of human spirits and unseen world generally is *isitunzela*, from *isitunzi*, shade, and this is the nearest description that can be obtained. Every man is constantly attended by the shade or spirits of his ancestors as well as his own, but when a man dies with a good conscience his shade is happy, but if he is a man of evil deeds his shade is unhappy. It is said that the shade of a man who has died with a good conscience is happy, but if he is a man of evil deeds his shade is unhappy.

man's body by the mouth and nostrils with his breath, and can never return; "He can never look upon the sun again." In cases of illness, when one has been in a state of coma or lain unconscious for a time, it is said that "his spirit left him, but that he has returned to life again." This is not a final leaving or death, only a temporary departure. It is interesting to note that Africans never speak of a man as dead. The phrase is, "He is not here," or, "He will never look upon the sun again." This same reluctance to speak of a man as dead is still characteristic of parts of the north of Scotland. During the year and a half I have lived in Caithness, I have not even once heard the words "He is dead," or "He died," from a native of the country. The phrase invariably used is, "He is taken away," or, "He was taken away."

To dreams and visions Africans attach great importance, but no theory of their origin, beyond being referred to spirit influence, is given. Should a man dream the same dream more than once he consults the magicians, who profess to have much of their own revelations through dreams. They direct him how to act, and his superstitious fears are allayed after he has communicated his troubles to them, and left his case in their hands. If the dreamer sees a departed relative the magician says oracularly, "He is hungry." A beast is then killed as a quasi-sacrifice. The blood is carefully collected and placed in a vessel at the side of the hut farthest from the door. The liver is hung up in the hut and must not be eaten until all the flesh of the animal has been used. During the night the spirit is regaled and refreshed by the food thus provided, and eats or "withdraws" the "essence" that goes to feed and sustain spirits. After a specified time all may be eaten except the portions the magician orders to be burned; generally bones and fat.

The departed spirit ascends to heaven, and by so doing "goes home." Though there are superstitions about spirits inhabiting caverns, the roofs of houses, and other places or objects, the idea underlying it all is, that the spirit at death goes upwards to the spirit land. This is clearly shown by their usual form of prayer, which is, "Ye who are above, who have gone before, &c." These departed spirits revisit the world and are interested in all the affairs of men. They bring prosperity or the reverse according as they are revered and obeyed or not, and when there is any departure from custom their displeasure is dreaded as men dread the plague.

I once bought a disused cattle-fold for fuel from a Gealeka, and after carting it home discovered that it had been struck by lightning, and that I might have had it for the taking. I sent for my friend and, to tease him, explained that all the evil that

During the rebellion of 1879, Umhlonhlo, after the murder of Mr. Hamilton Hope, the British Resident, was one day marching leisurely across country with his whole army. The forenoon was hot, and not a cloud could be seen in the sky. Presently the magicians noticed a peculiarly-shaped cloud on the horizon. It rose rapidly in one mass and "rolled upon itself." Its movements were intently watched till it approached the zenith and passed over the sun. This was an evil omen. For some unknown cause the spirits were mortally offended, and had come over the army in shadow at noonday. In grief and sorrow their backs were turned upon their children, and the result of this would be certain defeat and disaster. There was, however, no immediate danger. That morning scouts had reported that there were no troops within many miles of their line of march, and they could repair to some sacred place to offer sacrifices and make atonement. While they were discussing which place to repair to for this purpose, the van of a small column of cavalry appeared unexpectedly over a rising ground. Dismay struck into every heart. The war minister urged his men to form into order of battle. No one answered his summons. He did his best to organize an orderly retreat, but in vain; not a blow was struck, and every man took to his heels, making for the nearest hiding-place in mountain or forest. That army never re-assembled. Black-hearted fear utterly demoralized it.

A few years ago something unusual had gone wrong—I do not at this moment recollect what it was—at Konke's great place. The magicians were called, and decided that a black ox must be shut up for forty-eight hours without food or water, and be released at noon on the second day. The spirits would then lead it to the river, where it would drink and put an end to the evil which was caused by malignant water demons. Hereafter the ox must be killed as a sacrifice to the spirit which led it to the water. An animal was duly consecrated for this purpose and shut up in a small fold by itself. At dead of night a young teacher, who had been trained at Lovedale, and more learned to estimate magicians at their proper value, probably out of sheer love of mischief, gave the ox a plentiful supply of water. At the appointed time the animal was released, but instead of hurrying to the river it began to graze quietly beside the fold, nor would it even be driven to the water. Konke's rage overcame his superstition for a moment, and ordering his attendants to "slay the beast," he turned to the chief magician and brandishing his assegai, hissed between his teeth, "Go from my sight, and if you let me see your face again may forget that you are a doctor." So ended the sacrifice; it is the history of the ox. The animal was sacred for

sacrifice, and could not be eaten owing to the uncerebral manner in which it had been slain, and the dispersion of magicians. That night the teacher, armed with a " " secured for himself as much beef as he could conveniently carry. Two days thereafter his missionary visited the school and after the examination was regaled with prime beef, onions, and sweet potatoes. On making enquiries he heard the story as above related. Endless illustrations and examples could be given of the influence which ancestral or spirit-worship has upon the whole domestic, social, and intertribal life in Africa. It enters into the minutest details of daily work, and it influences the foreign policy of a whole people. It regulates family life, and it decides the fate of armies and the destiny of nations.

Closely connected with the doctrine of souls is that of other spirits than those of men. The spirits most commonly met with in African mythology are water or river spirits, inhabiting deep pools where there are strong eddies and under-currents. Whether they are all ever seen now-a-days it is difficult to determine, but they must at one time have either shown themselves willingly, or been dragged from their hiding places by some powerful magician, for they are one and all described as dwarfs, and correspond to the Scottish conception of kelpies or fairies. They are wicked and malevolent beings; and are never credited with a good or generous action. Whatever they possess they keep, and greedily seize upon anyone who comes within their reach. "One of them, the *Incanti*, corresponds to the Greek Python, and another, called *Hiti*, appears in the form of a small and very ugly man, and is exceedingly malevolent." It is certain death to see an *Incanti*, and no one but the magicians sees them except in dreams, and in that case the magicians are consulted and advise and direct what is to be done.

Another form of spirit may be mentioned in passing, and that is a quasi-guardian spirit attending the chief. He always has an ox which is a special favourite, and which must never be killed. By constant training and kindness it gets into the habit of leaving the other cattle whenever the chief calls himself with medicine outside the cattle-fold. It stands beside him and licks up all the froth, generally of human nature, spilt from the medicine basin. The spirit within him resides in this ox.

But to return to the river spirits. The places where they reside are dreaded and shunned, and no one can

nothing to do with them or to think of them when that can be avoided. When a person is drowned and no good cause can be assigned for the accident, it is said that he was "called by the river," which is equivalent to saying "the river demons." Anyone so called cannot resist the summons, and goes underneath obedience to their will. The magicians when they appear on the scene may prescribe a *formal* sacrifice, but the animal is not killed, nor is devotional prayer offered as in the case of sacrifice to departed souls. The animal is simply driven into the river while the magician says:—"We offer sacrifice." An alternative form of this sacrifice is that of throwing handfuls of corn into the water while incantations are repeated. At other times the magicians decide that the spirit must be pelted with stones. Men then gather on the bank, and throwing stones into the water, shout the most abusive epithets at the spirits residing there. But these river spirits are true demons, and must not be thus interfered with except when there are magicians present to avert evil. For a similar reason it is necessary, when about to cross an unknown river, to throw something, though it may not be of value, into the water, both to avoid immediate evil and future sickness or death.

Some years ago a number of Gcaleka girls were, on a fine summer day, bathing in the Bashee. One of them got beyond her depth, and began to struggle in the water and cry for help. Her companions promptly raised the alarm, and two men working close by ran down to the water's edge. She was still struggling feebly, but to the onlookers it was a clear case of being "called" by the river, and they made no attempt to save her. The body was recovered by the magicians the same day, it was found she had been drowned in less than five feet water. All this came to the ears of C. G. H. Bell, Esq., the District Resident, and he cited the parties, magicians and all, to appear before him in court. The two men not only admitted they could have waded to the spot where they saw her lying, but also said the water would not be "more than waist deep." They had made no effort to save her, as it would be "improper and dangerous to interfere when one is called by the river." Mr. Bell tried to argue them out of such absurd notions, but to little purpose, and finally came to the conclusion that "six months hard" might be more effectual in eradicating superstition than all his philosophy, and six months hard it accordingly was.

Last year a girl was drowned in a small stream called the bulu, and the body having lodged under a bank, could neither be seen nor recovered by ordinary means. The relatives were in despair, and having driven an ox to the edge of the water,

stood there with the magician, who prayed:—"Give us on We have brought sacrifice. It is not the dead we off blood." The demons made no response, and finally the F Davidson, near whose house the accident happened, recover the body by diving. This he did against the most ear remonstrance on the ground that he would himself be "calle

One other anecdote and we shall bid farewell to the spirits. On a sultry summer's day I came to the bank of Tsitsa, and feeling hot and wearied, resolved to have a swim in the clear and cool water to refresh myself after a long ride. I made my intention known to my groom who accompanied me, but he strongly objected that there were dangerous water snakes in the Tsitsa. I pointed out to him that water snakes do not bite, but this did not satisfy him; the snakes of this particular river differed from others. I asked him if he could show me the grave of anyone who had been bitten by water snakes. This he could not do, so I called him a woman or some such insulting epithet, and told him to attend to the horses as directed. Matters now looked serious, and standing straight before me, he said with the greatest awe and solemnity:—"The truth is, master, there is a *Tikolosh* there, and if you go in you will be called, and what am I to say to the *inkosikase* (i.e., the lady) when I go home for allowing you to go into the river?" I had my swim while my servant stood in mute terror on the bank, but had the *Tikolosh* been at home that day, these papers would never have been written.

It may be here mentioned that alongside the great footpath thoroughfares of the country there are found, at intervals, cairns or heaps of small stones. Travellers as they pass cast a small stone on these, and with uncovered head say, "Ah *sivivane*," i.e., cairn, "grant us strength and prosperity." On being questioned as to the origin and meaning of these *sivivane*, they profess utter ignorance, and say it was always so among their people. It is probable that the prayer originally was to the great spirit or the soul of the first chief of some powerful tribe, but whether spirits reside in the cairns or not, no one can tell. Certain it is that they hear the prayer of their children when they observe the customs of their country. Another method securing good fortune on a journey is, in wooded country, to twist tufts of grass into knots. These are carried in the light of evocation, and are used by those who look with scorn on their own superstitions when they are to enter any place, and that

religious fears and feelings, and if these differ in every particular from our conceptions of religious feelings and devotions, does not make the fact less real or less significant.

There is no periodical process of purging or driving away evil, and ordinary people, without the presence and aid of magicians dare not interfere with any spirits, however malignant and destructive to life and property they may become. Better leave a locality, and take up one's quarters at a distance, than do anything calculated to enrage demons and evil spirits which may have taken up their abode in the vicinity of human habitations. It is true that every man's life is guarded by the spirits of his ancestors, but this does not protect him either from demons, or wizards and witches. His life is not bound up with any object as totem or fetish, but he carries charms or articles of ornament that have been charmed by the magician, and these afford a measure of protection. A man can obtain charms to make him successful in predatory expeditions; to obtain the favour of his chief; the favour of women, and even the death of an enemy or rival. In this latter case the charms cannot be got from recognized magicians, they must be obtained from those who practice the illegal art and capital crime of witchcraft, and when discovery follows, both parties are condemned as equally guilty. The most commonly used charm is a necklet of cow-tail hair, twisted and knotted with specially prepared bits of wood. Each charm must be "doctored" for a special purpose, and is useless for any other than the one it was intended for.

In the war of 1846 (?) the magicians gave the soldiers, as a charm against English bullets, the blue flower of a species of rhododendron. Those who carried this talisman rushed forward against columns of infantry without a shadow of fear or hesitation, and only when men began to bite the dust in all directions the nature of the delusion break upon the army, and panic is

here is a custom lingering in odd corners, but whether it is universal I have not been able to determine. The probability is that it was, and that originally it took the form of substitution for human sacrifice, when in a very remote past the Southern Bantu tribes discontinued the practice. What led to the abolition of human sacrifice it is impossible to determine, and conjecture is in all such cases unsatisfactory. It has been thought that decimation by war and disease so thinned out the population, that human life became too valuable to be destroyed with such awful frequency as sacrifices in time of war and distress demanded, and that an alternative form of offering was adopted. The custom referred to is as follows:—All sickness, misfortunes, and great loss or calamity must be

referred to the magicians. Their ordinary custom is "extract the disease" or to "smell out" the person who touched the patient. Instead of adopting the latter, sometimes state that the cause of the evil is a dog, ox, or bull. The beast must be killed by the man and cooked at once. The flesh must be eaten and the sick man must be the first to taste and. No portion must be removed to another dwelling, nor bones be given to the dogs, as is usually done. They are carefully collected, and as carefully burned to cinders, also possible for the chief when a person is "smelt out" a magician, to order an ox to be substituted for the victim treated in the way above described. This is the only approach to the idea of a scapegoat of which I have heard, and the practice is far from common. I am not aware of one animal ever substituted for one more valuable or difficult to procure.

When sacrifices are offered to the spirits of a man's ancestors or to the spirit land generally, as in the case of death lightning, the idea is that the whole of the animal sacrifice is offered up, as well as the portions of bone and fat burned. The manner of procedure is as follows:—The flesh is cut up in small pieces, no portion being wanting, and placed in a heap where it lies in a heap for a whole night. During the night the spirits feast on it and withdraw the "essence," which constitute spirit fare. On the following day it is cooked

in the usual way. Among some tribes there is a bull as a special new year offering, and I not illustrate a peculiar manner of slaughtering the animal, institution of any importance. After it is thrown down, the left (?) fore-leg and shot and then the animal allowed to go and limp about on it. The flesh of the dismembered limb is immediately laid on hot fires previously prepared, and eaten or it once, the bones being thrown into the fire as they come from them. After this is done the animal, if not dead, is dispatched and dressed in the usual way.

Heavenly bodies.—The science of astronomy is in a very primitive condition in Africa, and though we find every man a keen and accurate observer of certain weather signs, such as the appearance and disappearance of stars in the sky, and the position of the ecliptic, no explanation is offered for them, and such as a reason.

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them now, and that they will thus always continue, unless some terrestrial catastrophe should set the whole on fire, or in some other way "disperse everything."

The earth is an extended plane, and may be round-shaped to the sun and moon, probably is so, but no one can tell, as men have never been to the edge to walk round the circle and look over. If anyone did so he would become giddy by looking down into the chasm, and fall into the abyss. A hole, if it were only deep enough, would go through the earth, and anyone falling into it would fall through into empty space. The sun, when he sets, goes through the sea, and, having gone round underneath us, comes up on the other side. The moon gradually wastes away and dies, and the new moon is a true new moon, and no reappearance of an old worn-out orb that has done previous service. The particles wasted from the old moon are lost, and do not go to build up the new, but how the young moon grows, or from what substance, "men do not know, and the spirits have never told." Eclipses foretell great evils, but it is not known what they are, and nothing can be done to avert them. It is sometimes said that an eclipse is a sign that the world is coming to an end, but this is inconsistent with the universal belief in the stability of the physical universe, and may be an idea which has filtered into the native mind through the influence of European thought in other but allied directions.

Thunder is caused by a very large mythical bird clapping its wings, and lightning is its excrement when purged. When lightning strikes any object, such as a dwelling, cattle-fold, or tree, the bird itself has descended, and again reascends in an invisible mist. Its descent is for the purpose of laying its eggs, and if these are not destroyed by the magicians, they are hatched and breed more thunder birds. The eggs, like the bird, are invisible.

A rainbow in the west indicates that there is to be no more rain for the present—this is simply the general result of observation—if in the east there is to be hail. When an extremity seems to rest on a pool or stream, no one will bathe at the spot, nor are women allowed to fetch water from it while the rainbow is supposed to remain there, which is a varying period. "Should anyone go to the spot they would find there a large basin, and at an incanti, which would swallow them in a heap."

Long continued wind is caused by evil people, wizards, and witches. These it is the business of the magicians to discover and expose. Rain is under the control of the professional rain

doctors. When no rain falls after the usual ceremonies, the doctor may accuse anyone of "stopping the rain by raising his posterior to the clouds."

Earthquakes portend frightful wars, in which all known tribes are to be involved. The origin and course of the war cannot be foretold, and nothing can be done to avert the calamity. During the present century earthquakes have been almost unknown in South-East Africa, and the accounts of them are almost purely mythical.

Origin of death.—Man came from the never-dying *Sudiwa*, but how, no one can tell, and after he had been a long while in a certain place, the chameleon was sent with a message to say that men were not to die, and immediately left upon its errand. The *Ntulo*—a species of lizard—overheard the instructions given to the chameleon, and resolved to avenge an old grudge by discrediting the rival and favourite that had been entrusted with so important a commission. Being swift of foot, the *Ntulo* waited till the messenger was well on his way, and then travelling by another route, arrived while the chameleon was still struggling in the marshes. The message he then delivered was that the *Sudiwa* had said men were to die as all animals die. When the accredited messenger appeared to deliver his commission, he was met with insult and scorn. To him the man said:—"Go, false one, we have already heard the words of the great *Sudiwa* from the *Ntulo*, and many men have died." Thus was the chameleon disgraced, and the *Ntulo* made famous.

When men die the body is dissolved and disappears for ever. There is no future or general resurrection possible, and certainly not after the body has become amalgamated with the earth in which it is buried. The dead may, however, be raised after burial by wizards and witches, but such reanimated bodies do not reappear among their former associates, nor do they take any interest in ordinary human affairs. They wander, partially bereft of their senses, in forests and swamps, and inhabit damp and dismal caves. This explains the custom of watching all graves, and why the grave of the chief must be watched and guarded night and day for years.

Miscellaneous customs.—Sneezing is a sign of good luck, prosperity and fortune. Stepping over another is highly improper. Anyone guilty of it will fall in battle should he be called on to go to war. If a woman steps over her husband's stick cannot aim or hit anyone with it in a village brawl; it is useless for its proper purpose. If she steps over him will never kill or even hit an enemy, and it is at once and given to the boys to play and practice with. A cat enters and leaves a house, the huts and cattle fold

composing a man's dwelling or steading—by prescribed paths, and must not enter the fold among the cattle, nor in any way interfere with their milking or feeding. Wizards and witches may bewitch from a foot-print, or from the impress of the body in sitting or lying upon the ground. To this there is not much importance attached, but finger nails and hair when cut must be carefully kept and buried.

Should anyone, supposed to be an enemy, be near when a man has occasion to retire, he will travel a long way from his house to some secluded and hidden spot. It is always customary to observe a practice resembling the Levitical enactment respecting the pointed stake.

Uneven numbers are unlucky, and on special missions from a chief odd numbers of councillors are never sent. Evil spirits hover about the unmated member of the party. These take the form of baboons, wild cats or owls, and when any such creatures appear away from their usual haunts, it is a sure sign of evil in the air. Elephants are greatly revered but not sacred. "When a hunter hurls his spear at one he accompanies it with the words 'pardon me'."¹

If a man is in hiding for a crime he defies detection by chewing the leaves of a plant known locally as the *umfingwane*, and charms carried about by a man stealing, prevents his being caught, even if seen by many persons. Africans never spit in a strange house. The spitter would be accused of bewitching the place. In a man's own house saliva must be carefully swept away or obliterated to prevent wizards getting hold of it to mix with their medicines.

Men and women never mention their own names if anyone else can be got to do it, but they do not absolutely refuse when it cannot be avoided. Wives never mention the names of their husbands, nor daughters and sons-in-law that of their parents-in-law. Children may mention their parents' names. The chief is never spoken of by his name. Either his title or his father's name is invariably used. The chief's name is usually changed on arriving at manhood, and a warrior's name is often changed after doing deeds of valour, and one less or more descriptive of bravery adopted. Names of common objects are changed by tribes and for various reasons. Should a chief's name be the same as a common object the name is changed. "One chief was called *Langa*—the sun—and in that tribe the name of the sun was changed to *Gala*, and so remains to this day, though *Langa* died more than a hundred years ago."²

During war a wife will often take her sleeping mat and place

¹ Brownlee.

² *Ibid.*

it against the door of her hut. If the shadow shows and clear her husband is alive and well, but if not, "he never look upon the sun again." A warrior who twists a of the hair of the common rat with his own has all the charm of avoiding the enemy's spear that the rat has of avoiding object hurled at it, and this causes rat hair to demand when war is expected.

At the end of the year all the men of certain tribes procure a strong emetic which they swallow, and cases have been known in which the magicians ordered the men to make a voyage to the sea and swallow quantities of salt water for this purpose. No special reason is given for the custom except that it "clears away all the evil humours of the body." Before the war of 1877, warriors were directed to make a pilgrimage to the sea side for this purpose in order to make them strong and valorous against the English, who had their strength in war through having come "out of the sea in their ships."

In some cases of illness the relatives, instead of calling a magician, drive all the cattle up to the sick man's door. A relative then in a loud voice shouts to the ancestors to say what is the cause of illness, and indicate a remedy. The first beast that makes water is selected as a sacrifice, but before being slaughtered it is probed sharply with an assegai, and if it bellows it is the right one. A large gash is then made in its side into which a man inserts his hand, and laying hold of the abdominal aorta, tears it away and breaks its walls. Some fat is extracted and burned while the beast is dying. After it is dressed, the right front shoulder is detached and taken into the hut, where a portion is broiled on embers and given to the sick man with medicinal ingredients. This remedy is supposed to be most efficacious in many instances.

When twins are born the father plants two euphorbia trees near the door of the hut, but I am unable to say why this is done. An unmarried woman on the seventh day after the commencement of the monthly period takes a handful of ashes from the village heap and eats it. A cow must be milked for her by her brother, and porridge made with the new milk, of which she partakes on the same day that she must eat the ash. "Chastity in married women can hardly be said to exist among the coast tribes. . . . Still chastity has a value in the estimation of the men, as is proved by the care and jealousy which the harems of great men are guarded." Adultery in a case of those so guarded is often punished by cutting off the right ear of both parties, while the man may suffer partially.

an eunuch. Mrs. Sutton writing from Bacaland in August last says, "Ten days ago a woman belonging to a closely guarded *isarem* and who had been found guilty of adultery, was put to death and her body left to be devoured by dogs or vultures."

In time of war the body of the first enemy killed is mutilated and a powder made as described in connection with initiatory rites for admission into guilds. This the war doctor rubs into a small incision made in the forehead of each warrior, to infuse strength and courage for the conflict. When peace is proclaimed it is usually ratified by an exchange of large presents of oxen, as many as one hundred being often sent by one chief to another.

As I write, one minor custom after another recurs to my mind, but a great number of these ceremonious usages of daily life are of little significance and of hardly any value except for purposes of comparison, as no reason is ever assigned for them except that most convenient of all reasons, "our people have always done so."

A very curious custom is observed by messengers sent by chiefs when on a long journey. It is customary to honour such by killing a sheep or goat where they halt for the night. The bladders are all given to the messenger, and these on his return he forms into a kind of coronet which he wears for many months. The larger the number of bladders the greater man he is. The head-dress has an unusual appearance, and is suggestive, if not of much feasting, at least of much slaughter. It should have been mentioned elsewhere that women are as often magicians as men.

Before concluding this very partial sketch of African customs, I wish to refer to a few facts not included in Mr. Frazer's questions, and to which I have adhered as closely as I conveniently could. The large field of arts and manufactures has not been touched upon, nor has any reference been made to the monuments left, in place-names and paintings, by the tribes displaced centuries ago, by an advancing wave of conquest from the north.

Mr. G. M. Theal, in his admirable little book, "Boers and Bantu," says of South Africans generally:—"The most prominent virtue of the Bantu tribes is devotion to their chiefs. Unquestionably this devotion retards their civilization; unquestionably also it has caused enormous loss of blood and money to Europeans and this country; nevertheless, it is a virtue in them. It is the bond that holds society together. . . . Another noticeable feature is their hospitality to equals and superiors. So great an extent is this carried that food may almost be said to be common property. . . . Anyone passing by at

meal-time, friend or stranger, provided he is not inferior in rank, sits down without invitation or ceremony, and shares in the meal. In most villages there is a hut set apart for the accommodation of strangers." Of this last trait of character I had ample opportunity of forming an opinion during the last three years I spent in Africa. My duties brought me frequently into contact with a large number of chiefs and sub-chiefs, and the nature of my business was not always very agreeable to them, but I was received with unvarying courtesy, and every hospitality was shown. No sooner was my intention to pass the night at a village known than a messenger was dispatched to slaughter a sheep, which, when dressed and cleaned, was presented to me whole. The left shoulder, as the joint of honour, is in such cases invariably returned to the chief. On one occasion I had to visit the chief of the Xezehis. From the Thursday evening till the following Monday morning we waited for the formal reception, but then it was worth waiting for. At the appointed time the old chief, Jojo, appeared with two thousand mounted men to do us honour. Before we separated he had given me £1,500 at least, for the use and benefit of the Scottish Mission.

Speaking of another phase of character Mr. Theal says in the book already quoted, "The deceptive power of all these natives which the coast native cannot control, and while, with a countenance devoid of all expression, he relates the grossest falsehoods, his lively eye betrays the passions he is feeling. Truth is not a virtue that one, who knows what savage life is, would expect to find in a Bantu." Of the truth of the above paragraph I have also had ample means of judging.

All the tribes were, when first encountered by Europeans, acquainted with the use of iron. This they smelted from its native ore, and formed into weapons of war and implements of husbandry. The smith's art was generally hereditary families, and they displayed considerable skill in branches of metal work. All their skill was given to the manufacture and ornamentation of arms, and many were as neatly finished as they could have been by a workman. In the manufacture of articles from wood made no progress, and fire was the principal agent in shaping spoons and knobbed sticks. The construction of article requiring different pieces of wood joined together beyond them. Building with stone was practically unknown except among the mountain tribes, who formed cattle folds of uneven blocks piled one upon another. The African has little to the stock of knowledge with

the great dispersion on the plain of Shinar. He has wandered hither and thither over the face of the continent, and has been sorely tried in the struggle for existence, but he has never relaxed hold of his stock-in-trade if he has not been able to add to it. To make a fire, smelt iron, whittle a bow and feather an arrow, to char and dig out a tree trunk for a canoe, to make a net for bird, beast, and fish, these seem to sum up his accomplishments, if to them we add one other, the skill to brew. Brew he must, and brew he does, and this it is which cheers his otherwise dull and common-place life. When galled by the fetters of custom and the fear of goblins, ghosts, and evil spirits, he can, sitting beside his chief's beer tub, defy them one and all, and he can even declare his willingness to meet an Incanti in single combat. But his elation and freedom of spirit is, alas! short-lived. On the morrow he must, in sackcloth and ashes, invoke the aid of the magician, and do penance for his too daring departure from custom and his defiance of those whose power over his whole life is infinite.

At one time a great portion of South-east Africa was occupied by Bushmen. They were wandering and homeless savages, but they have left behind them a record of occupation which has hitherto defied the ravages of time. On the rocky sides of their cave dwellings they were in the habit of making rude paintings of men and animals. The pigments used were white, terra-cotta, and dark brown, verging on black. Several of these cave paintings I have seen and examined minutely, and in every case found the colours, when washed and cleaned, as fresh and perfect as when left by the primitive artist. When the late Sir Bartle Frere was Governor at the Cape, he spent a short time as my guest at Blythswood. I mentioned to him the existence of a "Bushman's cave" in the neighbourhood, and afterwards inspected it together. He was greatly interested that he saw. Subsequently a well-known American lady visited Blythswood, and at my request made careful and accurate copies of all the paintings in the cave. These I sent Sir Bartle Frere, and he either gifted or lent them to some museum in London, but which I am not certain; South Kensington, I think. I am not aware that any other really able artist has had an opportunity of seeing and copying any of them.

There is a curious theory current among a number of South African tribes regarding their own origin as separate peoples. Universal tradition points to the north as their original home, but how they wandered away from it is seldom explained, and I profess entire ignorance as to the causes which led to a change of country and home. The tradition referred to accounts for migration as follows:—

The great chief whose people occupied the whole of the of Africa, and whose name was Uhlanga, had a law forbidding women to marry before a certain age on pain of direst punishment.

Long ago, "so long that all memory of their exploits is lost," Uhlanga sent a great army, the greatest ever mustered at that time, on an expedition towards the south. This army was to be absent a long time, and was to conquer to the farthest sea, was accompanied by numbers of women as cooks. After an absence of three years, during which the army met and destroyed a very great number of tribes, waves of the sea stopped its advance. The soldiers then gave themselves up to rest and enjoyment, and only after the grown fat eating captured cattle, did they think of their children. After the march northwards was continued many days, it was found that all the girl cooks were *enchanté*.

This caused consternation and terror among all ranks, and, for fear of punishment and death, the whole army retraced its steps towards the south, and arrived in the country of the Bushmen. There the generals divided the companies between them, and settled down to the pursuit of agriculture. They never had any tidings of their wives and children, nor did any of them return to their old home. Uhlanga thought that his army had perished and never again sent an expedition to that country.

The resemblance of this tradition to the well-known classic story is so close as to make one at first doubt its originality, but it is found among those peoples who have had least contact with Europeans, from whom alone they could learn the legends of the days when Rome was young.

When questioned regarding distances, and the time it would take to travel "to their home," in connection with such traditions as the above, the African's ideas are altogether hazy. He has no conception of the extent of his own continent. He understands nothing of lands beyond the sea, and all questions regarding navigation resolve themselves into magic and dark arts known only to white men.

Turning from tradition and legend to the daily life of the African, we find that the apparently easy and aimless life of the village is one of elaborate ritual and rigid adherence to forms, and this enters into all relations of life, public and private.

When special fire is used, either in connection with the festival of first-fruits, it must be made, and in the following manner:—Two trees, and called the "holy trees," are selected by the chief. These trees are

the exclusive property of the chief, the "wife" being the shorter of the two. The doctor cuts a piece off each stick, and proceeds to kindle fire by friction in the usual manner. After he has obtained fire, he hands it to his attendant, who gets everything ready for setting on the pot. The sticks are handed back to the chief by the doctor—no other hand must touch them—and put away till again required for a similar purpose. They are regarded as sacred, and no one, except the chief's personal servant, may go to the side of the hut where they are kept. A special pot is used for the preparation of the feast, and no other than it may be set on a fire produced from the "husband and wife." When the feast or sacrifice is over, the fire is carefully extinguished, and the pot placed along with the sticks, where it remains untouched till sacred fire is again kindled. This custom is not now universal; it probably was so at one time.

It is highly improper to kindle a fire in certain circumstances. There is a legend that when Unsha arrived in what is now Natal, having been preceded by a division of his army under his eldest son, he saw smoke rising as from a newly-kindled fire. He sent to enquire whose doing it was, and, being told his son had kindled it, he sent for him and addressed him thus:—"From this day you are no longer heir to the chieftainship of my people. Your first act on entering the enemy's country was to make a fire. That shows you will destroy my people." His second son was appointed heir, and he, in turn, offended his father by giving an order, the result of a foolish whim, that the first milk from every cow that calved was to be brought to him. The verdict in his case was:—"You rob the calves. When you are old you will suck blood." The

son was appointed heir, and became his father's successor. When a man has been slain in war, the doctor visits the dead and prepares medicine, which he mixes with fat and chips of an exceedingly bitter tree,—sneezewood. This is set on fire in his hands, and blows the smoke over the eyes and assembled friends. The smoke drives away the evil from them, and no further calamity happens.

When a married woman dies the husband eats bitter herbs, and goes out for several days tending the cattle, returning home later dark. When a husband dies, the widow goes away from home, and remains on the open plain or mountain for ten days, respectively of the condition of the weather. If he falls in battle, she secludes herself ten days in her hut.

Among certain of the mountain tribes there is a curious custom regarding an enemy who falls after displaying conspicuous bravery. They immediately cut out his heart and eat it. He is supposed to give them his courage and strength in

battle. The man who slays such an enemy is, at the close of the war, called before his chief, and gets from the tribal doctor a medicine which he chews with his food. The third day after this he must wash his body in running water, and, at the expiration of ten days, may return to his wives and children.

Women are at times forbidden to eat flesh from the foor of any animal. Ox tongue is at all times forbidden to women. A newly-made bride may not eat the flesh of bulls, nor may she eat flesh from the ribs of any animal. During menstruation women may not taste milk; if they did the cattle would die. The lungs, neck, and breast parts are eaten by boys only, while men are forbidden certain portions of the entrails. The head of the household never quite finishes what he has on his plate, and the eldest son is the only one who is allowed to take what is left and lick the plate.

At public entertainments, if a man of inferior rank is appointed by the host to wait upon guests of tribal standing, they will not accept food at his hands. The usual custom at large gatherings is to appoint one from among the guests to act as master of ceremonies, as regards his tribesmen. I once got into a curious difficulty through neglect of the correct etiquette. At a church opening at Somerville, about one thousand persons were present, representing six or eight distinct tribes. A man was appointed to wait upon a party of Pondomise, whom they regarded as not only of inferior rank, but an upstart from another tribe who wished to be recognized as a subordinate chief. Not a man would taste the food provided, and on after profuse apologies and explanations, tendered in the most public manner, could their wrath be appeased. The error was excused on the ground of my "ignorance of custom," and after that, good fat beef did the rest, and all dispersed in great good humour.

There is among the Bacas a curious custom in connection with courtship and marriage. A young man first tells some of his friends that he admires a certain girl, and after a stated period he speaks to her and says he would like to *Twala*, i.e. carry her off. If she is agreeable to this *twala* she mentions a day, and he then carries her off by stealth to his parents. Whether his parents like it or not they cannot oppose the sanction of custom, refuse to receive her remains at their village for three days under the guardianship.

On the third day she is returned to her father's the dowry cattle. If he ac its the cattle, the arranged to take place at an a y date, and her lov see her again till the oct n over. (Shed

father refuse the cattle and return them, the affair takes end. The young people are not in any way consulted regarding their feelings in the matter, nor does it ever occur to an African that this should be done under any circumstances.

The men of the Pondomise tribe have an extraordinary method of dressing their hair. The framework of the head dress is formed by placing a small ring of grass on the crown of the head. The hair is then well rubbed into the grass with fat, and securely sewn with thread made from the sinews of an ox. It is then greased and dressed every day, and the circlet rises with the growth of the hair till it attains an elevation of several inches above the head. It is never removed till colonies are formed under its dense mass, and when these become numerous, the man whose head gear was the pride of his life, appears with clean-shaven pate.

To the European who studies native manners, nothing is more marvellous than the force of custom and the power exercised by magicians. Their predictions may fail, thieves may go unpunished, rain may not fall, patients may die, but the magicians remain a sacred order, and every failure is explained away, and the fetters of custom remain unbroken. There are a few shrewd men who value the whole genus of magicians at their true worth, and who, from motives of policy rather than faith, observe the ancient customs. Such was my old neighbour, the Gcaleka chief, Segidi. A conservative beyond most in all matters of traditional usages, he was fully alive to more modern methods of conducting his business. While his war doctor was in a trance waiting for communications from the spirit world regarding the success of an expedition, Segidi's spies travelled the whole length of the enemy's country and brought him back an accurate report of the probable strength of the opposing force and their tactics in his field. Again, while liberally rewarding his tribal priests or warding off evil and upholding the traditions, he came to me with three of his sons to send them to school at Blythwood, where they remained for years, to return carrying with them that which never can be assimilated with the old life, be they professed Christians or heathens.

Native Africans have great attachment to their children, and bestow much care on their training. The heir of the house is his father's constant companion. From earliest years he is instructed in all the traditions of his family, and the history of his tribe. He is educated in the theory and practice of law, and learns to recite songs commemorative of deeds of valour.

hatred of traditional enemies is instilled into his mind from the dawn of intelligence, and he grows up with all the feelings

of rancour cherished by those who were first wronged by the people he is taught to hate. Duplicity, falsehood, and cunning are among the virtues instilled into his mind by those who have charge of his education.

Even in his sleep the African must observe the customs. A man must never sleep on the right hand side of the bed when he occupies the same bed with one of his wives. He must not touch her with his right hand; if he did he would have no strength in war, and would surely be slain.

The newly-arrived traveller gets a bit of fat with which to anoint his weary limbs. He sits in a particular place at meals and has a servant set apart to wait upon him. If a man of note a sheep or ox is killed in his honour, and the whole carcass presented to him. He returns the left foreleg to the chief or head man, and the remainder he keeps for himself and his attendants. All the years I spent in Africa, I never slept at a chief's village without having a whole sheep presented to me. I have, however, in turn presented a good many to distinguished visitors at the Mission.

It is difficult to exhaust the customs and small ceremonial usages of a savage people. Custom regulates the whole of a man's actions—his bathing, washing, cutting his hair, eating, drinking, and fasting. From his cradle to his grave he is the slave of ancient usage. In his life there is nothing free, nothing original, nothing spontaneous; no progress towards a higher and better life, and no attempt to improve his condition, mentally, morally, or spiritually.

These papers have already exceeded their intended limit and all reference to social gatherings must be omitted, and so must also the customs in building houses, irrigating land, breaking up new ground for cultivation, marking and ornamenting cattle, the reception of strangers and foreigners, the currency before the introduction of beads, buttons, brass wire, and finally coins, the daily routine of village life, regulations for keeping the peace among a multiplicity of wives; these and many other facts are all worthy of study by the anthropologist and historian, as are also such customs as forbidding cutting timber while the crops are green, now religious observance, probably originally a wise forest law to regulate the supply of timber. Over the

MARCH 25th, 1890.

HYDE CLARKE, Esq., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of the following gentlemen was announced:—

Professor JOHN CURNOW, M.D., of 3, George Street, Hanover Square, W.

Dr. WILBERFORCE SMITH, of 14, Stratford Place, W.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the AUTHOR.—*Essays of an Americanist.* By Daniel G. Brinton, A.M., M.D.

— *Note sur l'homicide par flagellation.* Par le Dr. Barret.

— *Note sur une statue ancienne du dieu Çiva, provenant des ruines de Kampheng-Phet, Siam.* Par le Dr. E.-T. Hamy.

— *Alexander Bruias. Courte Notice sur son œuvre.* Par le Dr. E.-T. Hamy.

From the SMITHSONIAN INSTITUTION.—*Proceedings of the United States National Museum.* Vols. x, xi.

— *Bulletin of the United States National Museum.* Nos. 33-37.

From the GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA.—*Annual Report.* (New Series.) Vol. iii, Parts 1, 2.

From the Right Hon. the SECRETARY OF STATE FOR THE COLONIES.—

Statistics of the Colony of New Zealand for the year 1888.

From the ACADEMY.—*Bulletin International de l'Académie des Sciences de Cracovie.* 1890. No. 2.

From the INSTITUTE.—*Annual Report of the Canadian Institute, Session 1888-9.*

From the SOCIEDADE CARLOS RIBEIRO.—*Revista de Sciencias Naturaes e Sociaes.* Vol. i. No. 3.

From the SOCIETY.—*Journal of the Society of Arts.* Nos. 1947-1948.

— *Proceedings of the Literary and Philosophical Society of Liverpool.* Vols. xli-xliii.

— *Arhiva Societății Științifice și Literare din Iași.* 1890 No. 4.

From the EDITOR.—*Nature*, Nos. 1063, 1064.

— *Science.* Nos. 370-371.

— *Revue Scientifique.* Tom. xlv. Nos. 11, 12.

The following Paper was read by the Author:—

The OLD BRITISH "PIBCORN" or "HORNPIPE" and its affinities.

By HENRY BALFOUR, Esq., M.A., F.Z.S.

[WITH PLATES II AND III.]

THE primitive wind instrument known by the name of "Pibcorn, Pibgorn, or Piccorn," now obsolete, has been but rarely described, and still more rarely figured, as specimens of it are now extremely scarce. There is evidence of its considerable antiquity in Great Britain, and most authorities regard it as of purely indigenous origin. Sir John Hawkins¹ says that the "Hornpipe" was invented in this country, and Fetis² mentions Angelsea as its place of origin. A comparison, however, of this interesting instrument with others of a similar primitive nature, seems to afford considerable evidence that its presence in great Britain was due to its transmission westwards over Europe from the East.

The Pibcorn is identical with the "Hornpipe" of some authors, the dance known by the latter name being, without doubt, derived from the instrument which was formerly usually employed in its accompaniment. An analogous case of the name of a dance being derived from a musical instrument occurs in the word "jig," derived through the French "gigue" from the German "geige," a fiddle.³

Somewhat similarly the term "Musette," originally meaning a "little pipe" or small Cornemuse of special form, came by an ordinary ellipsis of language to be applied to a piece of music written in the style of bagpipe music.⁴

The Pibcorn is by some writers called "Cornpipe," or "Cornepipe," but all these are merely varieties of the same word; *pib*, in Welsh; *piob*, Gaelic; *pipa*, Swedish; *pipeau*, French; *pfeife*, German; and *pipe* in English, being all modifications of the same; and similarly *corn* is allied to *képas*, cornu, and corne, and refers to the use of *horn* for some part at least of the instrument.⁵

¹ "History of Music," 1776.

² "Histoire générale de la Musique," 1874, vol. iv, p. 280.

³ c.f., "King Horn," a Romance, ed. by J. B. Lumley, Early Eng. Text Soc. 1866, line 1465—

"Rymenhild hit gan there
And axede what hi were :
Hi said hi weren harpurs,
And sum were pipers."

⁴ Stainer, "Music of the Bible," p. 119.

⁵ Stainer, "Dictionary of Musical Terms."

There are various mentions of the Hornpipe by the older writers.

Spenser¹ gives us the following passage—

"Before them yode a lustie tablere,
That to the many a horn-pype playd,
Whereto they dauncen eche one with his mayd.
To see those folks make such joyssaunce,
Made my heart after the pype to daunce."

Ben Jonson, in the "Sad Shepherd,"² too—

" . . . to swake
The nimble horn-pipe, and the timburina."

And earlier still, Chaucer in his translation, the "Romaunt of the Rose"—³

" . . . Yit wolde he lye
Discordaunt ever fro armonye,
And distoned from melodie,
Controve he wolde, and foule fayle,
With hornepipes of Corneweile."

Some writers assert that Chaucer wrote *Corn-pipes* as his translation of the "*Chalemeaux*" or "*estives*" of the original (written in the year 1260), but Sir John Stainer⁴ points out that probably "*Chalemeaux*," like the Latin form *calamus*, means a reed, and does not here refer to cornstalks.

It is true that pipes made of cornstalks are mentioned very frequently, and appear to have been used very largely by pastoral people. Such primitive instruments may doubtless be considered as the origin of all pipes with beating reeds, and to have suggested the higher forms, of which the pibcorn, and many other instruments to which I shall presently refer, are examples.

A rough and primitive pipe made of a small reed or green cornstalk, closed by a node at the upper end, and with a small strip slit off, but remaining attached by one end to form a vibrating tongue, is one of the simplest, and probably one of the earliest invented of wind instruments. To this class of simple pastoral instruments we must probably refer the origin of all instruments of the clarinet order, with single or beating reeds.

In like manner the oboe, shawm, or waits, should be referred to a similar simple instrument of reed or cornstalk, in which the mouth end is not slit to a vibrating tongue, but *pinched* together, thus forming a rough "double reed," on the oboe principle.⁵

¹ "Shepherd's Calender," May, line 22.

² P. 259, of Gifford's edition, 1816.

³ All line edition, lines 4246-4250.

⁴ "Dictionary of Musical Terms," p. 228.

⁵ E. Saumann ("History of Music") says that the "Schallmeyer" is derived from

Virgil¹ speaks of the use of a simple corn pipe—

"Tityre, in pascuæ recubans sub tegmine fagi
Silvestrem tenui musam meditaris avena."

So Chaucer² also—

"And many a pipe and lilyng horne,
And pipes made of grenè corne
As have these little Herdegroomes
That kepyn beastes in the broomes."

Spenser³ mentions oaten pipes many times—

"I sawe Calliope with Muscs moe,
Soone as thy oaten pype began to sounde,
Their ivory lutes and tamburins forgoe."

and⁴

"Rude ditties, tunde to shepheardes oaten reede."

Shakespeare has this line—

"And shepherds pipe on oaten straws."

When a larger reed is substituted for the slender cornstalk a superior instrument can be made; with a removable mouth-piece, cut from a smaller reed, slit to form a vibrating tongue of the simplest kind as before, and with finger holes more or less carefully tuned to a scale. In this stage there are several modern representatives, as, for example, the "*Argheel*," and "*Zummarah*" of the Arabs in Egypt, which have double pipes, while others consist of a single pipe only.

The instruments of the "Hornpipe" class are but slight improvements upon this simple and early form. In his work upon the "Musical Instruments in the South Kensington Museum,"⁵ Carl Engel figures a Welsh "Pibcorn," lent to the Museum by C. Wynne Finch, Esq., said to be of the early eighteenth century. It is described as made of horn, measuring about 18 inches in length, and having seven finger holes (only six appear in the figure, so probably the seventh is a thumb hole placed at the back). At one end is an expanding and slightly curved bell-mouth of horn, the outer edge of which is *serrated*; at the

the calamus (Roman reed pipe). "It is found in its most primitive form amongst the peasants of the lower Rhine, where it is known as the *May flûte*. It is made by youths in the spring, of green reeds or the soft bark of trees, and possesses a soft dreamy tone, not unlike the schallmeyer register of the clarinet."

¹ Eclogue I, lines 1 and 2.

² "House of Fame," Book III, lines 133-136.

³ "Shepherd's Calendar," June, line 57.

⁴ *Ibid.*, December, 14, 5; also January, 72; February, 40; October, 2, 56, 118; November, 24, 71; December, 142; also "Colin Clout's come home again," lines 5, 12, 36, and "Astrophel," l. 44, &c.

⁵ 1874, p. 293.

other end is a wide mouthpiece or air chamber, also of horn, which conceals and protects the delicate reed. This reed is described as resembling that of the *hautboy*. Stainer,¹ too, describes the hornpipe as an instrument "of the *shawm* or *waits* character," that is, having an oboe reed. This form is probably a comparatively late variety of the instrument.

Another specimen of the Pibcorn from Anglesea, and, as I believe, one of an earlier type, is figured and described by the Hon. Daines Barrington in the "Archeologia" for 1779. I give reduced copies of his figures (Figs. 7, 8, 9, Pl. II). This instrument in general character very closely resembles that figured by Engel; the pipe is proportionately longer and narrower, and is of *reed*, with six finger holes in front and a small thumb hole at the back. The bell-mouth of horn is exactly similar to that in Mr. Wynne Finch's example, even to the serrated edge, and the mouth-piece of horn bears the same resemblance to its fellow in the other.

The chief difference between the two specimens is seen in the reed, which is not on the oboe principle, but on the *clarinet* principle. It is a "beating" reed, formed by slitting the small reed-piece from above downwards, leaving the lower end of the vibrating tongue, thus formed, fixed, after the fashion of the cornstalk or Arab reed pipes, mentioned above. I think that this is the original form of the reed of this instrument for reasons which I shall presently explain.

With regard to the distribution of this instrument; it was, no doubt, at one time widely distributed, but we have mention of it only as occurring in Wales, Cornwall, Lancashire, South Scotland, Ireland, and also in Brittany. It was especially favoured by the rustics in the Island of Anglesea—Daines Barrington having obtained his specimen thence, where he heard the instrument played upon. He mentions that it was then scarcely used in any other part of North Wales except the Island of Anglesea, where Mr. Wynn, of Penhescedd, gave an annual prize for the best performer. He adds, "The tone, considering the materials of which the Pibcorn is composed, is really tolerable, and resembles an indifferent hautboy."

Edward Jones² mentions a Welsh instrument of allied form: "a sort of pipe used in some parts of South Wales, called *cornicyll* (from *cornig*, a diminutive of corn), which has a concealed reed on the same principle as the *pibgorn*, and the mouth-piece screws off in order to introduce the reed; in other respects this instrument is made like a common clarinet." This

¹ "Dictionary of Musical Terms," art. "Hornpipe."

² "Musical and Poetical Relicks of the Welsh Bards," 1794, quoted by Engel.

probably closely resembled Daines Barrington's pibcorn, with its "clarinet" reed.

I have not succeeded in finding any original mention of the occurrence of the hornpipe in Cornwall, though Sir John Stainer¹ quotes this locality in his list. Some writers assert that the word cornpipe is equivalent to "Cornwall" pipe, but this appears highly improbable. It has occurred to me that possibly Chaucer is responsible for the introduction of Cornwall into lists of localities in which the pibcorn has occurred. In the passage from the "Romaunt of the Rose," quoted above, the word "Cornewaile" appears as his version of "Cornouaille," as it is in the French original. Without reference to the original it might well be supposed that Chaucer referred to Cornwall, whereas the original, *Cornouaille*, no doubt refers to the district in the south-west of Brittany of that name. Sir John Stainer, to whom I mentioned this point, kindly tells me that he quite concurs with this opinion. In spite of this, on the other hand, Cornwall is a district to which one would turn in seeking for instances of the survival of a Keltic instrument, and it is a matter for surprise that there should be no recorded instance.

The "Lancashire Hornpipe" is mentioned in *The Tatler* (No. 157, April 11th, 1710), but I have been able to find no description of this form, and cannot say whether it differed from the Welsh.

It is represented in Scotland by the "Stock-horn." In Jamieson's "Scottish Dictionary" the "*Stock-and-horn*" is described as a "musical instrument composed of the *stock*, which is the hind thigh bone of a sheep, or a piece of elder, with stops in the middle, the *horn*, the smaller end of a cow's horn, and an oaten reed."

In the splendid volume on "Musical Instruments," by Hipkins and Gibb, it is said that the Lowland Scotch shepherd's pipe is made of horn, the cover for the reed being also of horn.

Engel² writes, "The *stockhorn*, which the pastoral people in Scotland formerly constructed, is similar to the Welsh *pibgorn*. In the 'Complaynt of Scotland,' which was written in the year 1548, we find the *cornepipe* enumerated among the pastoral instruments played by eight shepherds: 'The fyrst had ane drone bagpipe, the nyxt hed ane pipe maid of ane blew and of ane reid, the third playit on ane trumpet, the feyrd on corne pipe, the fyfth playt on ane pipe made of ane gait he the sext playt on ane recorder, the sevint plait on ane l and the last plait on ane quhissel.'"

Again (on page 373), Engel mentions a specimen of the

¹ *Op. cit.*

² "Musical Instruments in South Kensington Museum," p. 293.

Stockhorn lent by Mr. J. Gordon Smith, and quotes the following passage from Allan Ramsey in "The Gentle Shepherd," published in the year 1725—

"When I begin to tune my stock and horn,
Wi' a' her face she shaws a cauldrie scorn
Flocks, wander where ye like, I dinna care,
I'll break my reed, and never whistle mair!"

The various forms mentioned appear to be the principal varieties of the "hornpipe," which have lasted on in the face of competition from superior instruments, practically till the present time. The instruments of this class are closely allied to the bagpipes, as is especially evidenced in the more primitive varieties of the latter instrument, such as may still be met with in the East and also in the more remote regions of Europe. In dealing therefore with the pibcorn class frequent mention must necessarily be made of the bagpipes.

It seems very probable that the use of a large mouth-piece, or "wind-chamber" so to speak, covering the reeds and protecting them from injury, indicated the transition from pipes with uncovered reeds to those which are sounded through, and partly by means of a flexible bag, the skin being substituted for the gourd or horn when a continuous blast was deemed advantageous. A continuous blast can with practice be given, in performing upon some instruments, by inhaling with the nostrils and blowing with the mouth into the instrument simultaneously, after the manner of using the chemist's blow-pipe.

The Bhotanese are described by Turner¹ as being able to sustain prolonged blasts upon the hautboy in this manner; so, too, the Brahmins of India in performing upon their buccinum shells in their religious ceremonies; but this laborious method has been generally rendered unnecessary by the use of the skin air-reservoir of the bagpipes. The gourd or horn mouth-piece covering the reeds may have been originally adopted primarily as a *protection* to the delicate reeds, as we use a cap for covering the vibrating reed of the clarinets, and a secondary use may have been found in perforating the cover, so that this could be used as a mouth-piece, and the reed sounded without being taken between the lips.

The use of a gourd as a combined mouth-piece and reed-protector is very common in Southern Asia and Eastern Europe, and in some districts the same instrument may be met with in two forms, differing only in being furnished in the one case with a gourd mouth-piece, and in the other case with a flexible

¹ "Embassy to Tibet," 1733, p. 127.

skin bag, the remainder being exactly similar, as will be seen from some of the following descriptions:—

If we look to the East the number of reed instruments on the primitive oboe and clarinet types is very considerable, and it is unlikely that instruments whose chief parts are derived from reeds (*calamus*) should have been invented in any country other than one in which these materials occur in abundance; and I will now pass on and describe some Eastern forms which if not identical with our British pibcorn, at least resemble it in such detail as to leave little doubt of the derivation of this instrument from the East. I have already mentioned the Arab reed pipes, *arghool* and *zummarah*¹ (the latter being figured at Fig. 10, Pl. III), as being examples of extremely primitive clarinet forms roughly made from reeds, with small inserted reed month-pieces, each slit to a vibrating tongue. In some, the tongue is formed by a slit from below upwards; in others, from above downwards, so that the free end of the tongue points towards the player, as is the case in the pibcorn mentioned by Daines Barrington (*v.* Fig. 9). Occasionally a tin bell-mouth is added to these instruments, when a single pipe is used, instead of the double pipes, though the horn bell-mouth appears to occur now-a-days only in the bagpipes form mentioned below. A gourd mouth-piece moreover does not seem to be used with these Arab pipes. These appear to be survivals from an earlier stage than that of which the pibcorn is a representative.

Turning to the Greek Archipelago we find there an instrument which in appearance and character is almost the counterpart of the Welsh pibcorn. Amongst several very interesting specimens from the Grecian Archipelago, recently presented to the museum at Oxford by J. Theodore Bent, Esq., were two musical instruments which seem to throw great light upon the true origin of the pibcorn, and the arrival, in fact, of these specimens, led me to write this paper.

The first of these (Figs. 1-4, Pl. II) consists essentially of a chanter composed of two reed pipes of equal length, each furnished with five finger holes, the two pipes being tuned approximately to unison. These are fixed in a channel formed of the half of a section of larger reed split longitudinally. The upper ends of the pipes are fixed into a solid cap perforated with two holes corresponding with the cavities of the pipes. Into these holes above are fitted the two sounding reeds, protected by a short channel of large reed, which faces the opposite way to the channel in which lie the two pipes (Fig. 3).

The two sounding reeds are slit from below upwards to form

¹ Lane's "Modern Egyptians," 1860, p. 367.

vibrating tongues on the simplest "clarinet" principle (Fig. 4), each having a fine thread tied round it in order to restrict the play of the tongue. Over the upper part of the instrument and concealing the sounding reeds, is fitted a small gourd, which is perforated at the top to admit air, and so serve as a mouth-piece (Figs. 1 and 2), forming an air chamber of moderate size. At the opposite end of the chanter is fitted a bell-mouth, made from the small end of a cow's horn, the outer edge of which is serrated. This instrument was obtained in the island of Tenos. Its resemblance to the pibcorn is very striking, especially to the variety described by Daines Barrington (Fig. 7), which I consider the early form of this instrument. In both these the chanter is of reed; the sounding reed is of the simplest kind, and on the clarinet or single reed principle, protected by an air chamber; the bell-mouth is identical in the two forms, made of cow's horn with the outer edge serrated. The chief differences are: the single pipe of the pibcorn and the double pipes of the other; the different number of finger holes; the substitution in the pibcorn of the horn mouth-piece instead of the gourd. In Mr. Wynne Finch's pibcorn¹ further differences occur in the "oboe" reed and the chanter made of horn, differences which were no doubt adopted as improvements upon the older form.

These differences, however, do not amount to much, as they are rather what one would expect to find, as resulting from the migration northwards. The use of *double* pipes, as in the Tenos form, implies the pre-existence of a *single* piped form, of which, no doubt, the pibcorn is a survival, just as we find the single piped form (Fig. 11) of Arab reed pipes existing in Egypt side by side with the double pipes (Fig. 10, Pl. III).

The substitution of horn for gourd in a country where gourds are uncommon is but natural, the substitute most readily suggesting itself being the re-duplication of the bell-mouth of horn at the opposite end of the instrument. The serrated edge of the horn bell-mouth is the less likely to have been independently invented in the two regions from the fact of its not, apparently, serving any *useful* purpose. This, too, may perhaps be said of the bell-mouth itself, which, from the rough manner in which it is fitted, can have but very slight effect in increasing the power of the instrument.

The second specimen from the Greek Archipelago, which bears upon the subject of this paper, is figured at Fig. 5. This specimen illustrates how the Greek "hornpipe" is converted into a "bagpipes" by the mere substitution of the skin of a kid for the gourd mouth-piece. The vibrating reeds are concealed

¹ Engel, "Musical Instruments in the South Kensington Museum," p. 293.

by this skin bag, which is inflated through a small wooden mouth-piece. There are two reed pipes as in the last specimen, but while one has the usual five finger holes, the other, the drone, is perforated by but a single hole. The horn bell-mouth with serrated edge is similar to the other specimen. The tongues of the sounding reeds are slit from above downwards, as in the Barrington pibcorn.

This form of bagpipes is closely allied to the Arabian *zouggarah*,¹ which is, so to speak, the bagpipe version of the common Arab reed pipes, *zummarah*, mentioned above. This consists of two reed pipes² tuned to unison, each with four finger holes; each pipe terminates in a curved bell-mouth of horn.³ The reeds are sounded through a goat-skin bag or reservoir, with a simple wood mouth-piece.

Further Eastwards, in Persia, is a kind of bagpipes, *nei ambanah*,⁴ which bears a close resemblance to the form just described from the Greek Archipelago. In this there are two reed pipes lying parallel in a split bamboo, each having six finger holes, and a reservoir of sheepskin inflated through a wooden mouth-piece. The vibrating reeds are protected by a projecting semi-cylindrical piece of bamboo, facing backwards, exactly as in the Greek Island specimens. The chanter has no bell-mouth of horn in the specimen described and figured by Ouseley,⁵ and this constitutes the only important difference between this and the Greek and Arab forms.

In India the variety of instruments belonging to this simple class is very great. The *toomeri* or *tubri*, and the *poongi* or *pugi*, are primitive forms and probably very ancient ones. Both are especially used by the Sampuris or snake-charmers of Hindustan. The *magoodi* and *papanasem* are other slight varieties, but the proper nomenclature of these instruments is somewhat uncertain at present. The *poongi* has the ancient name of *Nasa-jantra*,⁶ and appears to have been blown in ancient times by the nostrils. It—in its modern form—consists of single or double reed tubes, with eight finger holes; the vibrating reeds are of the usual type, and sounded through a covering mouth-piece made, in one variety, of a dried pumpkin (*Curcubita lagenaria*),

¹ Stainer, "Music of the Bible," p. 119.

² Metal pipes are sometimes substituted.

³ From this it would seem that the horn bell-mouth was applied to the single pipe originally, and that the pibcorn therefore is probably the representative of the earlier stage before the double "hornpipes," such as the Greek specimen.

⁴ Ouseley "Travels in the East," vol. i, Pl. XXIII, Figs. 9, 10, 11, and p. 242. *Nei* = reed, pipe, etc., and *ambanah* = bag made of an entire sheepskin. Also called *nei meshak* or *nei kheig*.

⁵ *Op. cit.*, i, Pl. XXIII.

⁶ Tagore, "Short Notices of Hindu Musical Instruments," Calcutta, 1877.

and in another of leather,¹ thus illustrating well the transition to the bagpipes.

The *toomeri*, said to be more common in the Deckan than in Bengal, is very similar to the above. The number of finger holes varies, there being sometimes the same number on both pipes or several (usually seven) on the chanting pipe, and only three or four on the drone. An instrument of this class is shown at Fig. 12, having two reed pipes, each with four finger holes, and fitted to a gourd wind-chamber with wax fixing. The sounding reeds resemble those of the Greek bagpipes, Arab pipes, &c., and the pipes with their reeds, when the gourd is removed (Fig. 13), bear a striking resemblance to the *zummarah* of Egypt (Fig. 10), the latter, however, being bound together with twine, while wax is employed for this purpose in the Hindoo instrument.

Another Hindoo instrument is figured at Fig. 14 (Pl. III). Here, again, we have the two pipes, fitted with wax into a very large gourd reservoir, having a peculiar forward spur continued beyond the month-piece. The pipes are short and thick (Fig. 15), the chanter having five finger holes, the drone only three. The sounding reeds are precisely as in the last specimen. The resemblance to the Greek "hornpipe" (Figs. 1, 2, Pl. II) in this specimen is greatly increased by the presence of a curved bell-mouth of cow's horn, the method of fixing being precisely the same in the two specimens.

In most of these Hindoo double pipes one pipe is used as a drone, and usually some of the holes in this are temporarily stopped with wax, as may be seen in Fig. 15, according to the drone note required, occasioning a momentary pause in the tune. In the Arab *arghool* the alteration in the drone note is effected by having this pipe composed of a number of detachable joints. Probably in most primitive double pipes, particularly those in which the chanter has more than four finger holes, some such method as that of the Hindoos of stopping the holes of the drone, is used, as both hands must be used in order to cover more than four holes upon the chanter. Bagpipes of the primitive form are to be met with in India, as for example the *tourti* or *tourri*.²

It is unnecessary to multiply instances and describe the numerous other varieties belonging to this class; the types I have mentioned are sufficient for my purpose. The object of this paper has been to prove the improbability of the Pibcorn being a strictly indigenous instrument in Great Britain, and the great probability of its having, like so many instruments which

¹ Herklot, "Customs of the Mussulmans."

² Stainer, "Music of the Bible," p. 120.

have been brought to perfection in Western Europe, been derived from the East, where we may see varieties of this simple instrument still surviving and in common use.

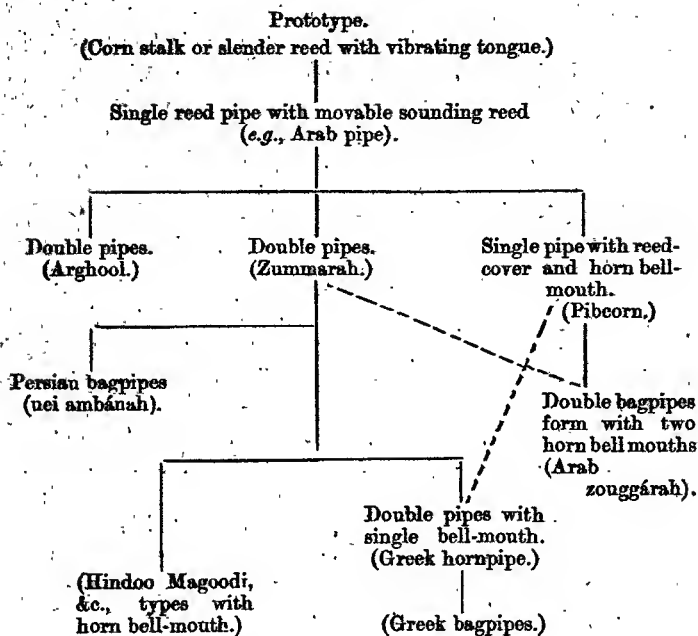
I will very briefly recall the main points of my paper. The Pibcorn and other closely allied British instruments, belong to a large family of reed pipes, whose natural and original home is in the East, and whose sounding reeds are of the simplest kind, and, at least in the early forms, on the "clarinet" principle.

Very early stages in the development of this class still survive, as, e.g., the Arab, single and double pipes of the *zummarah* and *arghool* type, the single form being necessarily the earlier of the two kinds. As a protection to the delicate reeds a cap or cover was added, and by perforating this a secondary use was found for it as a mouth-piece, through which the reeds could be sounded. The curved horn bell-mouth, though not universal, occurs certainly in India, Arabia, and the Greek Archipelago; and in the latter locality the outer edge of the horn is serrated, a character which persists in the Pibcorn.

This horn bell-mouth was added first to the single reed pipe, and the Pibcorn is a representative of this stage, while the Arab *zougghdrah* represents the early combination of two pipes of this character, each retaining its bell-mouth, whereas the Greek and Hindoo "hornpipes" illustrate the later stage with a single bell-mouth for both pipes. The bagpipes are closely related to the "hornpipes," the gourd mouth-piece having been replaced by a skin bag, for sustained blasts; they likewise originated in the East, and were derived from the double reed pipes with simple clarinet reeds, the substitution of oboe reeds in the higher forms¹ being a modern improvement, paralleled by the Pibcorn, described and figured by Engel. Both hornpipes and bagpipes had formerly a far more general distribution in Europe, the result of a gradual migration westwards, but were gradually ousted by the rapid improvement in musical instruments in Western Europe, surviving only in the more remote regions, among pastoral people, as, for example, in Brittany the *Pibcorn* (?) and Bignou or *Cornemuse* (bagpipes, lit., horn-pipe), in Wales the *Pibcorn* and *Pibau* (bagpipes); in Scotland the *Stack-horn* and Scotch bagpipes. It would seem as though these instruments had been brought to the British Islands with the Celtic immigration, and that they have survived particularly in those regions in which the Celtic blood has held its own. The bagpipes have tended generally to survive the horn pipes as offering special advantages in the sustained blast.

¹ The drones of the Highland bagpipes retain the primitive "clarinet" reed, though now-a-days the chanter usually has an "oboe" reed.

A rough scheme may help to illustrate the affinities of this group of instruments, as they are suggested by a study of the survivals—



Explanation of Plates II and III.

PLATE II.

- Fig. 1. Double "hornpipe" from the Grecian Archipelago, obtained by J. Theodore Bent, Esq., at Dio Maria Village, Tenos.
- " 2. Side view of same.
- " 3. Upper portion of same with gourd mouth-piece removed shewing position of sounding reeds.
- " 4. One of the sounding reeds removed.
- " 5. Bagpipes, from the Grecian Archipelago, obtained by J. Theodore Bent, Esq.
- " 6. One of the sounding reeds removed.
- " 7. Pibcorn from the Island of Angelsea, described and figured by the Hon. Daines Barrington (copied from the "Archæologia" for 1779).
- " 8. Back view of the pipe, with end pieces removed, showing reed *in situ*.
- " 9. Sounding reed of same.

PLATE III.

- Fig. 10. Double reed pipes, Zummárah, Arab, from Egypt.
 „ 11. Single reed pipe, Arab, from Egypt.
 „ 12. Double pipes, Toomeri, Deckan, India; Museum of Indian Institute, Oxford.
 „ 13. Same, with gourd removed showing sounding reeds *in situ*.
 „ 14. Hindoo “hornpipe,” with double pipes, and large gourd reservoir, side view; Museum of Indian Institute, Oxford.
 „ 15. Same with gourd and horn bell-mouth removed, front view, showing sounding reeds *in situ*.

DR. MACNEILL read the following Paper on behalf of the Author:—

The ANCIENT PEOPLES of IRELAND and SCOTLAND considered
 By HECTOR MACLEAN, Esq., M.A.I.

ASSIDUOUS research has now, at least, ascertained that, in early times, such migrations of tribes took place that autochthones are hardly to be found in any country, and that such were not found even many thousands of years ago. Most peoples, however backward, retain a legendary history of their forefathers corresponding to the state of their culture and beliefs, of their wild fancies and unbounded credulity. It is well when such traditions can be recorded, and can be had from original sources, as is the case with “The Ancient History of the Maori,” by Mr. John White, who says:—“The histories of other peoples are based upon monuments, inscriptions on wood and stone, or upon other records. The Maori had not reached this state of advancement, and, though he valued knowledge in the highest degree, it was entirely preserved in memory and transmitted orally.

“He had for ages held tenaciously to the mode of life imposed upon him by the laws and customs of his mythology, and he held his sacred knowledge in such awe that to divulge it to those not of his own race, or even to the junior branches of his own people, was to incur the penalty of death. So thoroughly was he imbued with the principles of his early teaching that even after he had been taught and had adopted the tenets of the Christian faith, his priests would not dare to disclose some of their secrets.”

Evidently, during a long period of the early and infant progress of tribes and confederacies of tribes, their history, garnished by fancy and imagination, is transmitted by oral tradition; and as tribes and peoples intermix, amalgamate, or conquer one another, so do also their dialects, traditions, and superstitions blend. Undoubtedly, in the far-off, dim past, the more cultured nations exerted, by intercourse, a civilising influence on those which were more backward. Egypt and the Western Asiatic nations promoted the advancement of Greece and Italy, while Greece and Italy introduced their culture to peoples further west.

As regards the British Isles, we derive some information from Greek and Roman writers, and as the Romans effected the conquest of Britain and its colonisation, more especially Britain south of the firths of Forth and Clyde, our knowledge consequently of Britain to the south of these firths, during Roman occupation, is more circumstantial than of North Britain; and as for Ireland, it never came under their sway, so that we know even less of it from them directly than of North Britain. Had the legendary history of Ireland been written by the first Christian missionaries who had settled there, then we might have had a record such as White's "Ancient History of the Maori"; but, nevertheless, we can still, by study and research, acquire good notions of it from ecclesiastical and bardic records in which it is intermixed and confused with Biblical and classical lore.

Although the first peopling of Britain would take place across the narrowest passage by sea between it and the Continent, yet as mankind had multiplied and improved in navigation, Ireland and South-west Britain were sure to be invaded from the south-west of Europe, from the west of Spain and France, and no doubt successive Iberian colonies took and retained possession of Ireland, before the Kelts made their appearance in the island. Before Christianity had been introduced, as in the case of New Zealand, the story of its wars, invasions, and colonisations would be handed down orally, and perhaps otherwise, by bards and druids through many succeeding generations. Whatever the primitive legends of the heathen Irish were, Irish ecclesiastics, versed in Greek, Latin, and Biblical learning, attempted to explain them by the history given in the works of Greek and Roman authors and in the Bible. The careful and persevering student, by comparison of old Irish legendary history with the wonderful discoveries made, in recent years, in Egypt, Palestine, Assyria, and Babylonia, may arrive at considerably probable results with respect to old Irish legendary history. *Eriu* is the oldest form by which the name *Éirinn*,

the name by which the island is known at present to the Gaelic speakers of Ireland and Scotland, is found in old Gaelic or Irish records. It is clearly a contraction or wearing away of the name Hibernia, though somewhat less so than York from Eboracum. The Welsh name is Iwerddon, which is a little closer to the original name.

Mr. Hyde Clarke, at p. 8 of his "Iberian and Belgian Influence in Britain," in referring to the names of islands, states:—"The meaning of the words can very well be made out; it refers to the roundness or circular form, or self-contained round or enclosure, which marks an island. This is the reason for which names of allied meaning are represented on the coins, as sun, moon, vase, or pot, which are round, as was the ship in its primitive shape. The fish was regarded as round, and other animals found on island coins are the crab and tortoise. Island is the same idea or root as mountain, and hence the names for islands and for mountains are the same. As rivers flow from mountains, so are they of the same nomenclature differentiated. Thus my first suggestion of the names of Britannia and Hibernia was so far accurate; but island is not derived from river, but from mountain, and river from mountain."

Then follows a list of compared names at p. 9, in which the name *Britannia* is compared with the river name Bradann, and *Hibernia* with the mountain name Hebron and the river name Hebrus.

The genitive of *Erin* is *Ereann* and the dative *Erinn*. In Middle Irish *Erin* passed into *Eire* and the genitive into *Eireann*.

At pp. 5, 7, of Kelly's edition of Dr. Lynch's "Cambrensis Eversus," it is related of Lachaire, son of Niall, that "He defeated the Lagenians and received the Boromean tribute; but they rose against him, once more, and having gained a victory, compelled him to swear by the moon and the winds, that he would never more demand that odious tribute. In violation of his oath he marched against them, but was killed by lightning near Caissi, in *Ui Faelain*, between the two mountains, *Eire* and *Alba*, according to the ambiguous prophecy that he would be slain between Eire and Alba, the Irish names of Ireland and Scotland, A.D. 458."

It appears, therefore, from this statement, that in the fifth century two mountains in Ireland were named *Eire* and *Alba*, and this fact confirms Mr. Hyde Clarke's theory.

It is highly probable that the name Hibernia, besides being applied to the whole island, was also applied to several districts of it, as signifying mountain land or country, and that several

districts in Scotland were also so named. In Ireland there is Loch Erne and Ireland's Eye; in Gaelic *Loch Éirne* and *Inis Éireann*. Richard of Cirencester relates that "The Lucani were situated where the river Ibernus flows into the ocean," and he mentions the Ibernii who lived in the south.

In Scotland is Auldearn (*Allt-éireann*, Rivulet of Éireann), a parish containing a village of its own name in the county of Nairn; the river Findhorn is called, in Gaelic, *Abhainn Éirne*, the river Éirne, a river of the counties of Inverness, Nairn, and Murray, which rises in the *Monatleadh* hills between Strathdearn and Stratherrick. There are *Strathearn*, *Loch Éarn*, and the river *Éarn* in Perthshire.

Banbha is also another old name for Ireland, which has too its counterpart in Scotland, in Banff, the name of a town and county in the north-east of Scotland, and still called, in the modern Gaelic of Scotland, *Bainbh*. The old form of the name of the town of Banff is "bánb," so written in a grant made to the monastery of Deir by King David I, of Scotland, and recorded in the Book of Deir. This name would seem to be totemical; for it is, very nearly in form, the same as "*Banbh*, a pig," and the corresponding cognate word in Welsh is "*Bannu*." Both *Éire* and *Banbha* were, according to the Irish legend, queens of the tribes of *Dé Danann*, and *Éire* appears to have been a frequent woman's name in Ireland in olden times. Dr. Joyce states in his "Irish Names of Places," that "there are, for instance, two places in Antrim called Carnearny, in each of which a woman named Éire must have been buried, for the Four Masters write the name *Cárn-Éireann*, Éire's monumental mound." (Joyce's "Irish Names of Places," First Series, p. 109.)

Keating tells us, in his "History of Ireland," that the third name in the order of time was *Inis-Ealga*, which he explains as meaning, "Noble Island." O'Reilly's Dictionary gives "*Ealg*, the face; an old name for Ireland; noble, excellent;" McL. and Dewar's "Gaelic Dictionary" gives "*Eilgheadh*, levelling a field for sowing; fallow-ground; a first ploughing of land that requires a second to prepare it for seed." The meaning, "noble," assigned both by O'Reilly and Keating, seems to be fanciful, and I should be inclined to explain the word by the Basque "*Elge*, *champ*, *plaine cultivée*;" that is, a cultivated field or plain, and the Albanic Gaelic word *Eilgheadh*, field cultivation. Consonant with this view, *Inis Ealga* would signify island of cultivated fields or plains, which contrast with its oldest recorded name, "Island of the woods." *Inis Ealga* has its counterpart in Glenelg in the county of Inverness in Scotland. In Gaelic the name is *Gleann-Éilg*, that is, *Glen Éilga*. Glenelg gives name to a parish on the west coast of

Inverness-shire. The coast, except in the bay of Glenelg, and within the sea-lochs, is generally high and rocky. The village of Glenelg is situated in level and arable ground at the bottom of one of the valleys in the parish called Glenmore. The name, *Fodhla*, would seem to correspond with that of the ancient Irish people *Vodiae* mentioned by Ptolemy. *Muicinis* (Pig's Island) would appear to be a translation of *Banbha*, made by the Kelts when they first settled in the island. *Inis Fáil* is another name very frequently occurring in old Gaelic tales and poems.

Fáil denotes "king," and *Fáil* is the genitive. *Inis-fáil* therefore signifies King's Island. The stone on which the kings of Ireland were crowned has a strange fictitious history which has been transferred to the stone on which the ancient kings of Scotland were crowned. Scotch historians maintained that the stone carried away by Edward I, which was the coronation stone of Scotland, was the *Lia Fáil*. Irish historians deny this, and maintain that the stone is still in Ireland. Dr. Skene, who has examined the Scotch coronation stone, comes to the conclusion that it is a piece of Scotch old red sandstone. So it cannot have come from Ireland; but the word *Lia Fáil* means King's Stone, and would apply to any stone which was used as a seat for a king when being crowned. *Muicinis*, Pig's Island, is said to have been a name given to the island by the Children of Milidh, that is, by the first Kelts who arrived in it. When they came, according to Irish legendary history, to the mouth of *Inbher Slaine*, which is called the harbour of Loch Garman now, the tribes of *De Danann*, with their druids, assembled to meet them there, and they practised druidism, that is, sorcery on them, so that the island appeared to them in the form of a pig, so that, consequently, they named Ireland, *Muicinis*, that is, Pig's Island. From this legendary explanation, it may be inferred that a pig was the Dedannian totem or mythological name for Ireland; that *banbh*, a pig, is a pre-Keltic word, and that from it is derived *Banbha*, one of the Dedannian names for Ireland. Again it may be reasonably assumed that *Muicinis*, Pig's Island, is a Keltic translation of *Banbha*, which has the same signification.

Old Irish legend tells us that Eire, *Fodhla*, and *Banbha* three Dedannian queens, who respectively gave their names to the island. *Inis Fáil*, King's Island, was also a name given it by the Dedannians.

The name *Inis Eolge* was given to Ireland by the Firbolgs and has already been explained. Although *Eolge* seems to me to be cognate with the Basque *Elge*, I am not to be supposed as implying that the Gaelic word is derived from the Basque word.

but that both have their root in an older Turanian dialect than any of the Basque dialects. It would appear somewhat probable that the following Gaelic words compared with Basque words have a pre-Aryan origin, and that both they and the Basque words compared with them are to be traced to Turanian dialects belonging to very ancient times which Mr. Hyde Clarke calls the Iberian Epoch:—Gaelic, *Adharc*, a horn, Basque, *Adar*: G., *Arrach*, likeness, spectre; B., *Aran*, appearance; G., *Aithre*, a beast of the cow kind; B., *Arthalde*, a flock; *Eirich*, rise; B., *Braik*, raise; G., *Earba*, a roe; B., *Erbi*, a hare; G., *Airne*, kidneys; B., *Erran*, kidney; G., *Eas*, an inseparable negative prefix; B., *Ez*, no, not, also used as a prefix; G., *As*, milk; B., *Ezne*, milk; G., *Ce*, night; B., *Gai*, night; G., *Call*, loss; B., *Gal*, to lose; G., *Garadh*, a warming or heating; B., *Gar*, flame; G., *Giblion*, entrails of a goose; B., *Gibel*, liver; *Gibelin*, gall; G., *Corrach*, steep; B., *Gora*, high; G., *Carraig*, a rock; B., *Harroca*, a stone or rock; G., *Cil*, death; B., *Hil*, death; G., *Ed* or *Eid*, cattle; B., *Idi*, an ox; G., *Iasad*, a loan; B., *Jesan*, to borrow; G., *Ceo*, mist, denotes smoke in the Gaelic of the Outer Hebrides; B., *Khe*, smoke; G., *Arr*, a stag or hind; B., *Oren*, a stag; G., *Airghir*, a cow calf; B., *Oraz*, a male calf; G., *Sabhal*, a barn; B., *Sabai*, a barn; G., *Tamh*, rest, repose; B., *Thai*, stop, repose; G., *Airne*, a sloe; B., *Arhan*, a plum; G., *Arthrach*, a ship, wherry, or boat; B., *Arran*, an oar. Gaelic is here used not restrictively, as meaning the Scotch dialect of the language, but for this tongue in general, comprehending old and modern Irish, Scotch, Gaelic, and Manks, written and spoken.

It may be said that the oldest native Gaelic stories which treat of the first peopling of Ireland, are mingled with the Bible stories of Adam, Noah, and the flood, along with a sprinkling of ancient Greek and Roman legend. Now this is what was to be expected from the conversion of the natives to Christianity. The first peopling of the island is traced to Spain, which is called in old Gaelic *Easpain*, a modification of the Latin *Hispania*, from which it comes. The Irish foreign geographical names are mostly borrowed from the Latin, as was to be expected, as it was the learned language of Christianity, and the language in which all Irish theological books and biographies of saints were written till modern times. At an early period of Irish Christianity, nevertheless, glosses to theological books and poems were written in the native tongue, and that old foreign geographical names should be superseded by Latin ones was to be expected, in fact, could not be otherwise. Still we trace in this legendary history something that is essentially native; and comparing the old written legends

with the simple tales and ballads collected among the Gaelic-speaking peasantry of Ireland and Scotland, we find frequently in some of the variants "*An Iar ma Dheas*" (the South-west taking the place of *Easpain* (Spain), *Gréig* (Greece), *Africa* (Africa), and so forth. One tale respecting the first peopling of the island is that three fishermen were driven by a high wind from Spain, against their will, to Ireland; were pleased with the appearance of the island, and returned for their wives to Spain, and after having come back to Ireland, the flood was sent to them at Tuaigh Inbhir (the ancient name of the Basin at Coleraine), so that they were drowned. Their names were Capa, Laighne, and Luasad. Another tale recounts that Ceasair, the daughter of Bioth, the son of Noe, came into it before the flood. Bioth, Fionntain, and Ladhra, with their wives Ceasair, Barrann, and Balbha made a ship, took fifty maidens with them, and went to sea. At the end of seven years and a quarter on sea they took harbour at Dun nam-bare, in the district of Corca Dhuibhne (probably Dunnamark near Bantry). *Ard-Ladhrann*, in the county of Wexford, is so called from Ladhra; *Slíabh Beatha* (now Slieve Beagh, near the town of Monaghan) from Bioth; *Fearl Fionntain* (Fionntain's grave), over Tultuinné, a hill rising over Loch Derg, from Fionntain; Carn Ceasrach, in Connanght, from Ceasair. All these speak of Ireland being peopled from the west by persons who arrived by sea from the south-west. *Fionntain* is a frequent old Irishman's name, but *Ceasair* and *Ladhra* would seem not to be explicable by Gaelic; *Bioth* signifies World, *Barrann*, a contraction of *Karr-shonn*, Fair-hair, and *Balbha*, dumb or silent woman. Capa-Laighne and Luasad would also seem to be inexplicable by aid of Gaelic.

Several conquests of Ireland are related by legendary chroniclers and bards. The first is that of Partholón. Partholón is said to have been the son of Sera, the son of Sru, the son of Esru, the son of Fraimint, the son of Fathaichta, the son of Magog, the son of Jafeth, and came to take it after it had been a desert three hundred years after the flood. Partholón is said to have set out from Middle Greece, that he went through the Torrian & Sicily, and with the right hand to Spain till he reached Ire. In two months and a half he took harbour in Inbhir Sgeál the western part of Munster. Dealgnaid was the name of his wife; the names of his three sons were Rugbruidhe, Slaighinne. Partholón dwelt first at Inis Seimher ver Erna. The seventh year after Partholón had the first man of his people died; that was Feall son of Tortan (little cake), and Magh Feallha (is so named from him).

The route of this people from Greece to the west of Ireland fully corresponds with old Iberian movements. How far the story is wholly or partially fiction is entirely another question. Some of the chroniclers speak of another conquest of Ireland before Partholón; that is, the conquest of Ciocal (pronounce Keekal), the son of Nel, the son of Gurbh, the son of Uthmhoir, from Sliabh Ughmhoir, and Lot Luaimhneach was his mother. They lived two hundred years by fishing and fowling till they met with Partholón in Ireland, and the battle of *Magh Iotha* (plain of corn) was fought between them, in which Ciocal fell, and in which the Fomorians were destroyed by Partholón. It is related that Ciocal and his people took harbour in Iubhior Domhnann, now the Bay of Malahide, in the county of Dublin.

We are told that the second conquest of Ireland was effected by Neimhidh and his sons. His descent, like that of Partholón, is traced to Magog, and "all the colonists who took Ireland after the flood descend from the children of Magog." The Irish hardie historians inform us that Neimhidh journeyed, when he was coming into Ireland from Scythia, on the narrow sea which is coming from the ocean that is called Mare Euxinum; that he gave his right hand to the Riffian mountains till he came into the northern ocean, and his left hand to Europe till he came to Ireland. The name of Neimhidh's wife was Macha, and Ard Macha (Armagh) is said to have been so named from her. Macha is one of several names for the Royston crow, which was the emblem of the Irish goddess of war, and several other renowned ancient Irishwomen were so called. All the other ancient recorded conquests of Ireland were made from the south-west, but Neimhidh and his tribe come from Asia by the north of Europe to the island. Neimhidh, the genitive of which is *Neimhiadh*. The *Nemetatae* were, according to Ptolemy, a people of Hispania Tarraconensis, and *Nemetobriga* was a city of the same part of Hispania, according to the same authority. *Nemetacum* was a town of Gaul, and the *Nemetes* were a people of Germany at the west of the Rhine. The *Vangiones*, *Triboeci*, and *Nemetes*, Tacitus tells us, were of German origin, and he says that the *Treveri* and *Nervii* resembled the Gauls in person and weakness, but the Gauls of Tacitus form a strong contrast to those of Livy.

It is certainly very probable that the *Nemetatae* of Spain, the *Nemetes* of Germany, and the Irish children of Neimhidh belong to a common original stock. In Dr. O'Donovan's supplement to O'Reilly's "Irish Dictionary," *Neimheadh* is a poet, "a lawful person," "a chief, a noble," "a king or bishop," "a musician, carpenter, or smith." There is considerable probability that the original meaning of the word was *man*.

There is the word *neimheadh*, a cow, which seems to have no relation to the other word than that of a homonym. It is evidently like many other words found in Gaelic—of pre-Aryan origin. Cow, in the Chinese of Nankin and Peking, is *Niu*, as in that of Shanghai is *Nieu*. In Gyami it is *Neu*, *nyeu*; Gyārunḡ *Nye-nye*; in Burman (written) *Nwā*, (spoken) *Nna*, *nwa*; languages on the frontier of China and Thibet. ("The Non-Aryan Languages of India and High Asia," W. W. Hunter, p. 113.) Like the tribe of Partholón before them, the children of Neimhidh, we are told, had fierce wars with the Fomorians, a name in the original signifying sea-farers, whom the old Irish chroniclers designate "sea rovers of the race of Cam who fared from Africa." The children of Neimhidh won many battles first, but ultimately the Fomorians were victorious and exacted heavy tribute from the children of Neimhidh.

The Firbolgs were the next people who seized and colonised Ireland after the children of Neimhidh. Their five chiefs, Slainghe, Gann, Seanghann, Geanann, and Rughradh, who are traced in descent to Neimhidh, divided Ireland into five provinces, whereof they were respectively chiefs; and royal government began with them. They were, according to Irish bardic historians, descended from a portion of the children of Neimhidh, who fled from the oppression of the Fomorians to Greece.

The Greeks subjected them to great tyranny, forced them to dig the ground, raise the earth, and carry it in bags of leather to put it on the rocky surface in order to produce a fertile soil there. They resolved to escape from this oppression, and, according to an ancient Irish manuscript, stole the fleet of the king of Greece, and came back in it to Ireland. They crossed the sea, the old bards inform us, reached Spain, and thence arrived in Ireland.

Irish historical writers have endeavoured to identify the Firbolgs with the Belgæ; but at p. 276 of his "Celtic Britain," Professor Rhys says of the Belgæ:—"Neither the people nor its name had anything whatever to do with the Irish Fir-bolg nevertheless, the learned professor assigns no reason for this strong assertion. The legend of the "bags of leather" is based on the assumption that *bolg*, in *Fir-bholg*, is identical in meaning with the Gaelic *bolg*, a bag; and on this supposition the legend of carrying the bags full of earth by the Firbolgs in Greece founded. *Fear*, in *fear-bolg*, is a Gaelic gloss on *bolg*, a *lanetes mura*, and is explained by the prefixed *fear*, which signifies *man*, as illustrated by numerous words wherein one language is grafted upon another, as in the case of Norse and Gaelic."

thus, *Eas-fors* is the name of a waterfall in the island of Islay, and of another in the island of Mull—two islands in the Hebrides. The first part of this name, *Eas*, means a waterfall in Gaelic, and the second, *fors*, the same in Norse; and so it is with Firbolg. So *boly* meant man or men in the language spoken by the Firbolgs, and was not understood correctly by the Keltic conquerors. At p. 8 of Mr. Hyde Clarke's "Notes on the Ligurians, Aquitanians, and Belgians," he says:—"The general name of Belgian, like that of Ligurian, is recognisable. It is man as in other cases." And further on, in the same page, he states:—"The Belgians in no general respect differed from the inhabitants of pre-Keltic Gaul. The distinction drawn by Cæsar is consequent on the occupation of midland Gaul by the Aryan invaders, thus sundering the northern Iberians or Belgians from the southern Iberians or Aquitanians, as also from the Ligurians."

"We find, also, that the district was settled with Iberian cities, and that this occupation extended to these shores of the North Sea, if not further, and even to the amber deposits." That the Firbolgs were the same people as the Belga, before the latter had been intermingled with the Kelts, there would seem to be hardly any doubt.

The Firbolgs consisted, in fact, of three septs—the Fir-bolgs, the Fir-Domhnanus, and the Galleons. Domhmann is the genitive of a Gaelic name of which the nominative was probably *Domhan*, and cognate with *Damnii*. At p. 12 of his "The Iberian and Belgian Influence and Epochs in Britain," he enumerates the *Damnii* in Britain and Ilibernia as tribes whose name was derived from a prehistoric name for man. The name of this sept of the Firbolgs is preserved in the old Irish names, *Inbhior Domhmann* (river-mouth of *Damnii*), now the Bay of Malahide, in the county of Dublin, and *Iorris Domhmann*, equivalent to *Iur ros Domhmann* (west promontory of the *Damnii*), now the barony of Erris, county Mayo. There are Gaelic words which appear to be allied to this name, such as *damh*, a people, tribe, or family; *daimh*, relationship; *daimheach*, a relative, friend, or associate; *dás*, a man.

The *Damnonii* or *Damnii* of North Britain, according to Dr. Skene in his "Celtic Scotland," extended from the Selgovæ and Novantæ, south of them as far north as the River Tay, south of the firths of Forth and Clyde; they possessed the modern counties of Ayr, Lanark, and Renfrew, and north of them the county of Dumbarton, and the western half of the peninsula of Fife. The Irish *Damnii* were, in all likelihood, an offshoot of these.

When the Romans built the wall between the firths of Forth

and Clyde, it passed through the territories of the Damnonii and divided them into two parts, one of which within the wall was subjected to the Roman Government, and the other was beyond Roman Britain. The historian speaks of the tribes without the wall as grouped into two nations—the Caledonii and the Mæatae. The Caledonii included the northern tribes of which the Caledonii were the leading tribe, and the Mæatae those extending from the Caledonii to the wall. Adamnan, in his life of St. Columba, mentions the Mæatae, whom he designates Miathi or Miati, with whom the Albanic Scots were at war, and who were defeated in battle by the latter in 596.

The name Mæatae, Miathi or Miati, very probably signifies like numerous other pre-Aryan names of tribes, *men*. *Mies* denotes man in Finnish; in Tibétian, *Mi*; in Serpa and Múrmá, languages in Nepal, *Mi* signifies *man*, as it does in Bhútani, in north-east Bengal, and in Mithán Nága on the eastern frontier of Bengal. ("The Non-Aryan Languages of India and High Asia," by W. W. Hunter, p. 139.)

The fifth conquest of Ireland was that of the *Tuatha De Damann* or Dedannian tribes, who are said to have come from Achaia in Greece, where, being skilled in sorcery, they exercised it on enemies of Greece, who had come in a great fleet from Syria. The Syrian people consulted a druid of their own, by whose directions the druidism of the Dedannians was thwarted, and the result was that the Syrians were victorious over the Greeks. When the Dedannians observed that the people of Syria were prevailing over the Greeks, they departed through fear of them, out of Greece, and they did not stop until they reached Norway, or the country of the *Fair Lochlann-men*, where the people welcomed them for their great acquaintance with science and with numerous arts. He who was chief over them then was Nudaioha Airgwdlámh (Nuadha of the Silver-hand) of the race of Neimhidh. They obtained four cities for teaching the young people of Norway in them. After having been for a length of time there, they went to Alban (Scotland), and were for seven years at *Dobhor* and at *Iardobhor*, after which they came to Ireland. They landed in the north of Ireland, fought with the Fírbolgs, and gained the Moytura South over them, in which Nuadha of the South lost his hand. Thirty years thereafter the battle of South was fought between the Dedannians and the wherein Balor, the chief of the Fomórians fell and the Silver-hand lost his head.

The older form of the legends, as contained in poem, does not mention Partholón's colony; names it as the first colonists, and identifies the children of

with the Tuatha Dea. Gillacaoman, in a poem quoted by Colgan, also identifies the children of Neimhidh with the Tuatha Dé Danann. As the Tuatha Dea and Tuatha Dé Danann are both identified with the Nemedians, it would seem that *Dinann* stands for another people united to the Tuath Dea, and that this people was the Fir Domhnann, one of the septs of the Firbolgs. The Ravenna Geographer gives *Dannoni* for Ptolemy's Damnonii, which differs but little from *Danann*, in Tuatha De Danann. The Tuatha De Danann lived, bardic chroniclers tell us, seven years at *Dobhor* and *Iardobhor*, in the north of Alban, before they went to Ireland, from which it may be inferred that the Damnii of Ireland were a branch of the Damnonii or Dannoni of North Britain, and that they and the Nemedians became one people. *Dobhor* signifies water, and also a boundary. As the Damnonii had the River Tay to the north of them, and as their territory included the basins of the Forth and Clyde, *Dobhor* seems likely to have been the portion of their territory bordering on the Tay and *Iardobhor* (west water or boundary), that portion of it bordering on the rivers Forth and Clyde. The towns enumerated by Ptolemy in the territory of the Damnonii were six in number—three south of the firths—Colania, Coria, and Vandogara; and three to the north of them—Alauna, Lindum, and Victoria. They appear to have been in advance of the tribes north and south-west of them in culture, which gives foundation to the knowledge of arts and sciences ascribed by the old Irish bardic chroniclers to the Tuatha Dé Danann.

The names of three of the Irish provinces—Leinster, Ulster, and Connaught are in the original Gaelic, *Laighin*, *Ulaidh*, *Connacht*; which names are not territorial, but signify the people of these respective provinces. *Laighin* is a nominative plural, the genitive plural of which is *Laighcan*, which may very probably be, as in the case of so many other Gaelic substantives, the nominative singular. In recording events relating to the *Lagenians* or people of Leinster, Irish writers use *Laighuibh*, the dative of place, otherwise the locative of *Laighin* for Leinster. This name bears considerable resemblance to *Ligyes* and *Ligures*; which names are given as signifying *man*, at p. 3 of Mr. Hyde Clarke's "Notes on the Ligurians, Aquitanians, and Belgians." *Ulaidh* is a plural substantive denoting a people, and like *Laighin*, is not territorial; the genitive plural is *Uladh*, which was probably also the nominative singular. "*In Ulster*" was written in the original Gaelic, *in Ultaibh*, that is, in *Ultonians*.

Connaught is, in the original Gaelic, *Connacht*, a modification of *Conn-iaicht*, which denotes children or descendants of *Conn*;

but the old name of the province, as given by Ptolemy, was Nagnatai. This seems to be a name given to a pre-Keltic people by Kelts or Gaels. The *na* would appear to be a fragment of the nominative plural of the old Gaelic article, and the second part, *gnathai*, is apparently cognate with *gnath*, a manner, fashion, or custom; *gnathach*, continual; *gnath-bheurla*, vernacular tongue. In Albanic Gaelic there is the compound word *Gnath-mhuinntir*, signifying native people; and Nagnata was applied by the Gaels to the people who preceded them in the occupation of Connaught.

The first part of the name Munster, *Mun*, is a contraction of *Mumhan*, the genitive of *Mumha*. The *mh* is silent both in modern Albanic and Irish Gaelic. It was anciently *Mum*. This name bears a strong resemblance to the Akkadian *mamu*, to dwell, plain, country; and the last syllable, *ma*, to the Finnic *ma*, land. "The Esths," says Dr. Isaac Taylor, in his "Etruscan Researches," p. 342, "call themselves *Rahwas*, the 'people,' their country *Ma-rahwas*, the land of the 'people,' and the name of their chief city, Revel, is a corruption of *Rah-wa-La*, the place of the people." Among the broken tribes of Nepal, earth is *māti* in Darhi; *mato* in Denwir; *mati* in Kuswar; and *māti* in Tharu. (W. W. Hunter's "The Non-Aryan Languages of India and High Asia," p. 118.) There is good ground for inferring that all these names are cognate, and that Munster was, in ancient times, colonised by an Altaic people.

Rhebogdii has evidently become the modern *Ruta*, anglicised Boute, the north part of county Antrim. *An Ruta*, the Boute, is still a living name in the songs, tales, and Gaelic of the Scottish Highlands. B, in Gaelic, undergoes what Zéna calls the vowel inflection, which ordinary Gaelic grammarians call aspiration, and when this happens b takes the sound of v. In numerous words aspirated b is vocalised, and acquires the sound of oo; again, g aspirated is a sonant spirant. In this case, in consequence of these changes, the name becomes *Ruta*. It is such another instance as is Eboracum metamorphosed into York. The first syllable, Rho, is the eq-
very, and the rest of the name, bogdii, ap-
the Gaelic verb *bearaim*, "I dwell," and to s
inhabitants. Rhebogdii, then, means the real
name given to them by the Goidels or old Gas

The Yodii dwelt in the northern part of co-
already mentioned, would seem to have given
to Ireland. This people were seemingly of
related to the following tribes mentioned
passage from Dr. Taylor's "Etruscan Rese-
The name of the Budii, another Median tribe

tribe name which is seen in the tribe names of the Vod and Wotiaks, and in the town-name of Buda in Hungary. Another Median tribe name, that of the Matiani, as well as the national name of the Medes, contains the common Ugrie tribe name, *mat*, which is the precise equivalent of the Turkic *ordu* (horde), and means "tent."

Fodhla is probably equivalent to *Vod-la*, the place of the *Vod* or *Vodit*. One of the seven Pictish divisions of North Britain was Fodla or Fotla, to which the Dalriadic Scots, or Gaels, prefixed *ath*, next or other; so Athfhóthla signifies the other *Fodhla*. It is recorded in the Annals of Ulster that in the year 739 Tolarcan mac Drostan Rex. Athfhothla was drowned by Aengus, and the same event is mentioned, at the same date, in the Annals of Tighernach. This Tolarcan was a Pictish sub-king. Athfhothla has been contracted into Athol, which is now a district in Perthshire.

The Lucani were a tribe in the south of Ireland whose name corresponds to that of the Lugi who dwelt in Eastern Ross and East Sutherland. In the region of Arracan and Burmah, *Lu* denotes *man*, in Burman, and, in Sak, *Luán* is an obsolete Gaelic word for son, and *Luan* means lad, champion, &c. The *an* of these words shows them to be diminutives which point to a primary word signifying man.

The Venicones occupied the present counties of Forfar and Kincardine, and the Venicii, a name that differs but slightly, inhabited the county of Donegal in Ireland.

In the region of Siam and Tenasserim, *khom* means *man* in Siamese; *kun*, in Ahom; *kun*, *khun*, in Kámti; and *Khon*, in Laos. ("The Non-Aryan Languages of India and High Asia," p. 139. W. W. Hunter.)

The country of the Vacomagi comprehended Murray, Strathpey, Badenoch, and Athol. The second syllable of the name *com*, denotes kindred in Gaelic, and *coma* varies but slightly from *kami* and *kumi* in Kámi and Kumi, two languages in Arracan (*Ibid.*, p. 139).

The Smertæ were situated to the west of the Lugi and dwelt about Loch Shin. The *S* of this name seems to be prosthetic, and the name would appear to be properly Mertiæ. It is now ascertained that the ancient Medes were Turanians. According to Canon Taylor, in his "Etruscan Researches," p. 78:—"Many of the Median tribe names are of the Finnic type. Thus, the name of the Mardi, one of the Median tribes, contains the characteristic Finn gloss *mart* or *murt*, 'men,' which occurs in the names of a very large number of Finnic tribes, such as the Mordwin and the Komi-murt." Smertæ or Mertiæ, therefore, denotes men. In the Sanwar language, Nepal, Múru signifies

man. *Muir* and *muireann* denote woman, and *muir* means a troop or company, in Gaelic.

The Cerones and Creones occupied the north-west of Argyllshire and the south-west of Inverness-shire. The first parts of these two names, *Cero* and *Crea*, are obviously cognate with *Karu*, "man," in Mon or Talain, one of the languages of Tenasserim; *Cear* means offspring in Gaelic. The Carnonacæ probably extended from the Sound of Skye to Assynt, and the Cornavii inhabited Caithness. The two first syllables of these names, Carn and Corn, correspond to *Karu*; "man," in Mon and to *koro*, "man," in Kuri, in Central India; *Cearn* signifies "man," in Gaelic.

Taezali, Taezalai, or Taxaloi, inhabited the present county of Aherdeenshire. The terminations, *ali* and *aloi*, in the varied forms of this name, correspond to *alū*, "man," in the languages Irula and Badaga of Southern India. *Taez*, *Taiz*, or *Tax*, seems to be cognate with the old Gaelic word *Tas*, a "dwelling," and so Taxaloi means the "inhabiting men," or inhabitants of the district.

The Gadeni appear to have occupied Cowal; that is, the country between Loch Lomond and Loch Pyne; and the Gadiui inhabited the county of Northumberland, and probably the counties of Roxburgh and Berwick. Canon Taylor tells us at p. 340 of his "Etruscan Researches," that the "root *sen* enters largely into the ancient Siberian tribe names"; and that "the same root appears as a suffix in the names of the Alani, the P-alani, the Cumani, the Huns, the Uasni, and other nations Ugric blood." With these may be classed the Gadeni of Ancient Britain.

The Irians of Ireland, a people more ancient than the Heberians or Heremonians, are called in Gaelic *Shiacht Ir*, the offspring of Ir, latinised Hyrus. Ir, their eponym, means land or earth, which points to their being inhabitants of the island long before the two other peoples mentioned. Ulster was exclusively Irian, from the mouth of the Boyne to the Bay of Donegal, down to the second century. In Leinster the Irians had possession of Longford, the Queen's County, and part of Westmeath environing Uisneach Hill. The greater part of Kerry, the west of Clare, and a tract round Fermoy, were theirs in Munster ("Book of Rights," pp. 48, 65, 78, 100). They possessed Connemara, and scattered tracts in Mayo, Roscommon, Limerick, and Sligo, in Connaught (*Ibid*). Thus the position of Irian territories evidently shows that the Irians preceded the Heremonians and were driven by the latter from the more accessible districts of the island. It may be inferred, from Irian topography, that the race possessed the greater part of the island.

A great number of names of Irian Over-Kings of Ireland appear in the lists before Ugaïne the Great; particularly, Ollamh Fodhla and his seven Irian successors. Again evidence is afforded by the partition of Ireland between the two Irian brothers, Cearmna and Sobhairche, a tradition which is supported by monumental evidence, the palaces of both, in opposite ends of the island, yet known by their names, and designated the oldest buildings in Ireland. *Dun-Chearmna*, Fort of Cearmua, was situated on the Old Head of Kinsale, in Courcy's country, in the county of Cork. *Dun Sobhairce*, Dun-severick, Sobhairce's fort, is an isolated rock, whereon there are some fragments of the ruins of a castle, near the centre of a little bay, three miles east of the Giant's Causeway, in the county of Antrim.

The Irian palace of Emania was the most extensive of its kind in Ireland. It was built, according to the researches of Irish scholars, 305 years before the Christian era, and destroyed in A.D. 322. The Irish Nennius informs us, and on this point there is reason to think that he is reliable, that the Irians were not brothers of the Heremonians and Heberians, but Picts or Cruithne. The Irian Ollamh Fodhla, and also the six Irian kings who succeeded him, are in this work called the seven Cruithnian kings that ruled over Ireland. It appears, in fact, that the Irians and Cruithnians are identical, and that they reigned in Tara before the Heremonians, but were thence expelled, and maintained themselves chiefly in Ulster, in the palace of Emania (Gaelic *Eamhain*. This word also denotes double, and as *Eamhuin* had an outer and an inner wall, so it is very likely that the palace was so called from the number of the walls).

Nennius speaks of a great colony of Picts in Ireland, which ere for a long time in Eri, and acquired great power there, until they were driven out by Heremon, except some tribes which remained in *Magh Breagh* (Plain of Breagh). The old Celtic form is *Mag Breg*, in which *Breg* is a genitive plural; and in the "Lives of SS. Fanchet and Columbkille," *Sliahh Breagh* is translated Mons Bregarum, in which Bregarum points to a nominative *Brega*. *Sliahh Breagh*, then, signifies the mountain of the Bregians. (See "Joyce's Irish Names of Places," First Series, 4th ed., p. 423.) These *Brega* or Bregians, then, were Picts or Irians, and as the Gaelic eponym of the Brigantes of the south of Ireland was *Breogan*, and as they were designated *Siol Breogain*, the descendants of *Breogan*, they were, likely, a kindred people to the Bregians, and therefore Irian or Pict. The Brigantes of Britain would seem to have derived their name from a pre-Keltic people, and originally in to the Irish Brigantes.

At an early period the letter p was wanting in Gaelic, and in loan words from other languages, c hard, equivalent to p, was substituted for it. Britannia was converted into *Prydain* by the Britons of the south, and into *Prydyn* by the Picts and Celtic Britons of the north. Pictland, or Pictavia, was named *Cruithin Tuath* by the Scots or Gaels, in which *Prydyn* was changed into *Cruithin* and *Tuath*, means north; so *Cruithin Tuath* denotes North Britain. Many of the Picts of North Britain settled among their Irish kinsmen in Ireland, and also among the Gaels or Scots, and hence comes the eponym *Cruithne* and *Cruithnigh*, angl. *Cruithnans*, which signify Britons. Hence the confusion about the settlements of the Picts in Irish legendary history.

The name *Picti*, which Roman writers misunderstood and confounded with *picti*, "painted men," with which it has nothing to do, was the people's own name for themselves, whatever it means, and is preserved in the Lowland Scotch name for them, *Pechts*. In Skene's "Chronicles of the Picts and Scots," at p. 380, "Gewictis," a Gaelic form of the name *Pict*, occurs, which would, at first, have C substituted for P, as in the case of *Cruithin* for *Prydyn*: "and quhen Iber comme to eild, Gayele send him in yat cuntre yat now is callit Irland, and fand it vakande, bot of a certain of Gewictis, ye quhilk he distroyt, and inhabyt yat land, and callit it eftir his modir Scots, Scotia." *Pictones* is a name apparently cognate with *Picti*, and the latter people were no doubt akin to the former. The *Pictones* were situated along the southern bank of the Loire, and were an Aquitanian people, on account of which, evidently, Augustus extended Aquitania to the banks of the Loire. Strabo tells us that the Aquitanians resembled the Iberians more than the Gauls. They were seemingly a Turanian people.

That gynocracy prevailed among the Picts is supported by this passage from "Tract on the Picts," p. 328, Skene's "Chronicles of the Scots and Picts":—"And in the time of Erimon, Gub and his son, viz. Cathluan, son of Gub, acquired great power in Erin until Erimon banished them out of Erin, and they made peace after that, and Erimon gave them the wives of the men who were drowned along with Donn, viz. the wives of Bress, the wives of Buass and Buaigne; and they declared by the sun and moon that they alone should take of the sovereignty and of the land from women rather than from men in Cruithenath for ever, and six of them remained in possession of Breaghmagh, and from them are derived every spell, and every charm, and every sneezing, and the voices of birds, and all venoms, and all talismans that are made."

Lists of the names of Pictish kings contain names very

unlike the names of ancient Scottish or Irish kings; none of the latter ever begins with P or hardly ends with the same letter. At p. 5. of Skene's "Chronicles of the Scots and Picts"—the Pictish Chronicle—there occur *pant*, *urpant*, *uip*, *uruij*, and at p. 6, *Vipoig Brude* comes before the names on the list on p. 5 twenty-seven times, and it is probable that it means chief king. At p. 7 this passage throws light on the meaning of *ur* in *urpant*, &c.: "*Da Drest, id est, Drest filius Gyrom id est, Drest filius Wdrost, V annis conregnauerunt, Drest filius Girom solus V annis regnavit.*" So from this passage it appears that *Da Drest*, "Two Drests," Drest, son of Gyrom, and Drest, son of Wdrost, reigned together five years, and that Drest, son of Girom, reigned alone five years. The *Da* (two) here explains *ur* in the names *urpant*, *urgant*, *urnith*, *urfecir*, *urcal*, &c., which evidently signifies two; thus *urpant* is preceded by *pant*, *urgant* by *gant*, *urnith* by *gnith*, *urfecir* by *fecir*, *urcal* by *cal*, &c.; so like *Da Drest* (two Drests), *ur* therefore denotes two of the name that follows it. In Georgian *Ori* denotes two; in Chinese, Nankin, *Urh* (*ár*); in Chinese, Pekin, *Urh*; in Gyami, Chinese frontier, *A'r*. (W. W. Hunter's "The Non-Aryan Languages of India and High Asia," p. 34.) In Stoke's "Goidelica," 2nd ed., pp. 106-121, the author examines the Gaelic entries in the Book of Deir (from the Abbey of Deir in Buchan, Aberdeenshire). *Pet* or *pett* occurs five times in the names of gifts of land or town lands made to the abbey at different times. *Pet* is usually followed by a Gaelic attributive. It is related in the first entry that Bede the Pict, who was Grand Steward of Buchan at the time, gave to St. Columba and his pupil Drostan, son of Cosgrach, the town of Deir, in freedom for ever from Grand Steward and chieftain. He also gave them in offering from *Cloch in tiprat to Cloch pette mic Garnait* (Stone of the well to Stone of pette of son of Garnat).

Mr. Whitley Stokes, at p. 120, "Goidelica," fancifully, and very unsatisfactorily, tries to identify it with the Irish Gaelic word *pet*, denoting a portion of food. It appears to me to be, evidently, a pre-Keltic word. It takes the form *Pit* in modern Scottish topography. In Slater's "Directory of Scotland for 1882," I have counted the names of places beginning with *Pit*, and they are as follows—Aberdeenshire, 14; Fife, 25; Inverness-shire, 3; Forfarshire, 10; Sutherland, 2; Ross-shire, 2; none in Argyllshire, Dumbartonshire, Stirlingshire, Caithness, Orkney, Shetland; 1 in Haddingtonshire, the only one south of the firths of Forth and Clyde.

With *pet* or *pett*, now *Pit*, sometimes, in a few instances, yet, *Pet*, a townland, hamlet, or village, correspond *Uraon Padda*; *Ho Hattu*; *Mundala*, *Hatu* in Central India; *Kota Patti*, in

Southern India; all denoting village. (Hunter's "The Non-Aryan Languages of India and High Asia," p. 163.)

The following names of towns which would seem to be cognate with *pet* occur in Hyde-Clarke's "Researches in Prehistoric and Protohistoric Comparative Philology," p. 54:—*"Paita, Pita, Putu, in Peru; Pauta, in New Granada; Pitu, in Mexico; Peto, in Yucatan; Bata, in India, S.; Beda, in Mesopotamia; Pida, in Pontus; Eboda, Padua, in Palestine; Pitane, in Mysia; Patara, in Lycia."*

The word *dabhach*, as signifying a portion of land, occurs in the Book of Deir. In Stoke's "Goidelica," p. 111, in an extract from the Book of Deir, there is the place-name *Dabaci* mentioned, and four *dabhachs* (*cetridabach*) free from all burthens. Probably *Dabaci* is the old Gaelic plural of *Dabach*.

The modern Gaelic spelling is *dabhoch*, to distinguish it from *dabhach*, a vat. In Shaw's "Gaelic Dictionary" it is said to be "a farm that keeps sixty cows"; but in McL. and Dewar's, "a farm of extent sufficient to pasture a certain number of cows, varying in different districts. In the Hebrides the number 320 is understood." At p. 117, "Goidelica," Mr. Whitley Stokes erroneously assumes that *dabhuch*, a vat, is a liquid measure applied to land, as pint, pottle, and gallon are in Ireland. These last are fixed liquid measures, but a vat was never such, for vats are and always have been of various sizes. *Dabhoch* is an occasional place-name joined to an attributive, and sometimes contracted into *Dauoh* or *Doch*. There are *Davochbeg* (Little *Davoch*) at *Davochfin* (White *Davoch*), in Sutherland. *Dabhach* may appear to be akin to Georgian *Daba*, "a village" (Hunter's "The Non-Aryan Languages of India and High Asia," p. 163), and *Tabi* and *Teabo*, Yucatan; to *Tabeo*, New Granada, and *Tabachula*, Guatemala, equivalents to "town." (Hyde Clarke's "Researches, &c.," p. 57.)

Deir would appear to be cognate with *Dera*, denoting village in Dhimal, N.E. Bengal, but its meaning was not understood by the Gaelic speaking monks of the Abbey of Deir. Their explanation was *Drostan's* tears came on parting with Columcille (St. Columba). Said Columcille, "Let *Deir* ('tear') be the henceforward," Stoke's "Goidelica," p. 109. In this manner ecclesiastics, bards, and legendary chroniclers in Ireland and Scotland explain pre-Keltic names of men and places and rivers. *Deir* was so called before it was ever visited by a speaking Christian missionary.

It is well understood that the Gaelic of Ireland, Scotland, and in the Orkney and Shetland centuries borrowed largely the language of the Scandinavian invaders, who called them *Theng*. Thus in the *Annals of the Kings of Ireland*

place, suffixed in the names of the three provinces, Ulster, Leinster, and Munster, of which the first syllables are contractions of the Gaelic names. Nevertheless, Scandinavian place-names are sparse in Ireland; the Scandinavian place-names in the island of Islay alone exceed in number all that are mentioned in Joyce's "Irish Names of Places." The amount of words borrowed from English is very large in modern written and spoken Irish Gaelic as well as Albanic or Scottish Gaelic; but the Manks Bible contains a much greater number of English loan words than either the Irish or Scotch Gaelic Bible.

It may be therefore assumed that the Kelts, after having succeeded in obtaining settlements in Ireland, would borrow considerably from the dialects of those tribes who had been settled there before them; and the dominant tribes among those were, no doubt, Iberian and Turanian. Now numerous old Gaelic words, and many are still living, bear a very strong resemblance to non-Aryan words found in the languages of the hill tribes of India and High Asia, of Africa, and of Mexico and Central America. Here follow some of them: "*Bealtaine*." This word occurs in Cormac's "Glossary," allowed by Mr. Whitley Stokes to be Old Irish, but written in Middle Irish orthography. It is still a living word in a slightly altered form; in Scotch Gaelic *Oidhche Bhealltainn* is the last night of April, and *Iatha Bealltainn* is the first day of May; *Bealtaine* is a genitive which seems to point to *Belltan* as the nominative. The word is preserved in Lowland Scotch as *Belten*. The first syllable *Bell* evidently signifies *Sun*, and the second part, *tainne*, would appear to be the genitive of *tan*, time, now only used in the adverbial phrase *an tan*, the time or *when*. *Bealtaine* then denotes sun's time or course, and *Bliadan*, now *Bliadhna*, a year, is derived from the same source, and means sun's time or course. The sun is named *Belá* in Dhimal and Kocoh, N.E. Bengal; and in Jband and Chentsu *Belá*, Central India. (Hunter's "The Non-Aryan Languages of India and High Asia," p. 158.)

Tatha (Tay) corresponds to *Tui*, the name for water, in Kani, Kumi, and Mru, Arakan (*ibid*, 164); Carron and Garry, names of rivers in Scotland, correspond to the river names Garra in Ho (Kol), Kol (Singblau), Bhumi, and Mundala, and in Uraon Khar, Central India (*ibid*, p. 150). Gaelic *Caochan*, a streamlet, seems related to the river names, Cauca in New Granada, and Caicus in Asia Minor. G., *Sian*, rain; the river Shannon is named *Senos* in Ptolemy, and *Sionann* in modern Irish; New Granada, Sinu; India, Sonus; Sicily, Asinarus (Hyde Clarke's "Researches, &c.," p. 49). It has been shown by Mr. Whitley Stokes that *Seine* is not derived from Sequana, the ancient name

of the river, but from *Sena*, the name of one of its tributaries *Cottud* in Old Gaelic, a mountain, likely related to *cotull* millstone; "Cotopaxi and Cotocha Ecuador, *Cottia* Alps (Hyde Clarke's "Researches in Prehistoric and Protohistoric Comparative Philology," &c., p. 51.)

Gaelic, *Tain*, water. Tanais, ancient name of the Don Russia. Tinna, the ancient name of the Tyne, misapplied the Tay by Ptolemy.

Gaelic words are here compared with some of the Hittite words and their cognates in Major Conder's list in his paper on "The Early Races of Western Asia," "Journal of the Anthropological Institute of Great Britain and Ireland, August, 1889," pp. 30-51. Gael., *Achadh*, a plain; a field; Hittite, *Aker*, Etruscan, *ager*, "field"; Lapp, *Aker*, "field." *An*, good, noble: Hit., *An*, "god"; Hit., *Gu*. *G*., *Gu*th, voice, word; *G*., *Cenna*, enclosure (O'Davoren's "Old Irish Glossary.") Hit., *Kan*, *Gan*, "enclosure"; *G*., *Cu*, a champion, a hero, a warrior; *Os* signifies a dog, but it seems to be rather a homonym than that the former is merely a figurative use of it, for in a ballad that recounts a fight between the great Ultonian hero, *Cu-chulainn*, and the Norse warrior king, *Garbh-Mac Stairn*, *Cu-chulainn*, in his reply to the Norse king says, "I also give the word." another king, &c." Animal names become men's names, such as *Sithach*, a wolf, *Fuolan* (Fillan), a little or young *Sionnach*, a fox, &c.; but are not used to signify chiefs of tribes or territories; thus *Cu-Connachta*, champion chief of Connacht; *Cu-Uladh*, champion or chief of Ulster; *Ultonians*; *Cu-Midhe*, champion or chief of Meath; *Cu*, sea champion. There is certainly ground for inferring in this case, is originally a different word from akin to Hittite, Akkadian, and Susian *Kn*, "king a hill; *corrach*, steep; Hit., *Kur*., mountain Tcheremiss, *korok*. One of the three best legends according to their own view of the matter, was the sons of Uisnech; one of the three sons was *Nais* the names of the other two brothers are explained but *Nais* is not. They were, of course, three princes with their uncle's wife, whose name was *Déirdre* by their being slain in battle with King Con and *Déirdre* stabs herself and falls down dead corpse. There are assuredly good grounds for the name *Nais* is cognate with Hittite, *Nas*, *Nas*, juice, moisture, a wave; Hit., swamp, "flowing"; *G*., *Tu*gna, a king, a lord; *Tu*gna judge, a tongue, a pillar or tower; Hit., *Tarka*, *ch* *Tarka*, *Tarchu* (Tarquin); Etruscan, *Turkhan*, *G*.

lord, noble; Hit, Tur, chief; G., *All*, a bridle; *alaire* occurs in some of the West Highland tales for steed; *loth*, a filly. Asia Minor words, Carian, *Ala*, "horse"; Hungarian, *lo*.

The Gaels, oldest written form *Goidel*, pl. *Goidil*, are supposed by some writers to have preceded the Cynary in Britain, and to have been pressed westwards by these into Ireland. There is every reason, however, to admit that the first Kelts came into Britain across the narrowest passage between Gaul and Britain, but that as they extended themselves to the west of Gaul and Spain, and had acquired a knowledge of navigation from the Iberians, who were subdued by them, they found it easier and preferable to make their way to Western Britain and to Ireland, where their Keltic kinsmen in Britain had not yet entirely conquered the non-Aryan inhabitants of Western Britain, and had not crossed the sea to Ireland. Irish legendary history brings them from Spain; but it is more probable that they came from the north-west of Keltic Gaul. The Veneti, according to Caesar, were a sea-faring people, well skilled in navigation, and were in the habit of making voyages into Britain. Now *Féne*, one of the names by which the Irish Kelts called themselves, bears a near resemblance to Veneti. There is a difference in quantity between the first syllables, but the provection of V, equivalent of W, into F, may account for it, as also in the case of Gw in *Gwynedd* or *Gwynudud*, North Wales. There hardly need be any grounds for hesitating, although a little contrary to rule, that these names are cognate.

Connected with this old name, *Féne*, are *Féine*, a "farmer, ploughman, or champion"; *Feinne*, the celebrated militia of Ireland; *Fiann*, a soldier of the ancient Irish militia (O'Reilly's "Irish-English Dictionary"). *Feinn* is the Highland name for the same warriors, and on the tales and ballads which related their fictitious exploits, for generations, throughout the Scottish Highlands, Macpherson based his celebrated "Poems of Ossian." In a contribution to the *Scotsman* newspaper of January 16th last, by Professor Mackinnon, "On the Feinn," quoting from the "Book of the Dan Cow," part of a legend contained in it, he says:—"According to this legend, Fiann was the son of Cumhall, son of Treimne, who was, at the time, *ri-ghlennid*, that is, 'king-warrior,' of Ireland, and in the service of Conn *Celchathach*, 'the fighter of a hundred,' a monarch of Ireland who died 197, A.D."

One of the old Irish legends speaks of Heremon, the eponym of the most powerful branch of the Gaels, marrying a Dannanian princess, and the best explanation is, that the first Kelts came to Ireland, like the Saxons to Britain to aid the Britons against the Scots and Picts, to aid some Irish king or lord.

some other kings or rebellious subjects. The oldest form of *Ereumhon* is *Emer*. In Fiace's Hymn, one of the Irish hymns in the "Liber Hymnorum," in line 35, we have "*Patraic prid-chais do Scotaibh*," *Patrick preached to Scots*, and in line 37, "*Meicc Emir meicc Erimon*," *Sons of Emer, sons of Erimon*, in which the genitives of *Emer* and *Erim* appear, and these sons of *Emer* and sons of *Erim* are there mentioned as two branches of the Scots. In the Syllabary at the beginning of Professor Sayce's "*Assyrian Grammar*," p. 35, the Akkadian words, "*erim, lakh*," are translated *soldier* (*host*); and certainly *erim* bears a strong resemblance to *Erim*. *Emer* was, in later writings, changed to *Eber* and *Eibhear*. Professor Sayce tells us in his "*The Hittites*," p. 14, that "the common Assyrian title of the district in which Damascus stood, *Gar-emeris*, is best explained as the *Gar* of the Amorites." He informs us, at p. 15, that "the Amorites were a tall and handsome people, depicted with white skins, blue eyes, and reddish hair." They were evidently the same race as the ancient Libyans of Africa, who are now represented by the Kabyles, "who are found in large numbers in the mountainous regions which stretch eastwards from Morocco." Professor Sayce further states: "Their clear white skin, their blue eyes, their golden-red hair, and tall stature, remind him (the traveller) of the fair Keltic of an Irish village." Further on, at p. 16: "It is clear, then, that the Amorites of Canaan belonged to the same white race as the Libyans of Northern Africa; tall like them, preferred the mountains to the hot plains and valleys below." Whether *Emer* is to be equated with "*Amour*," or rather with *Erpin*, is a matter of further inquiry. The *Erpinians*, a name which signifies "*Seafarers*," who are so celebrated in Irish legendary history, were Libyans, and hailed from Northern Africa. Kesting, in his "*History of Ireland*," calls them "*searovers* of the race of *Cam*, who fared from Africa." They have left some place-names in Ireland. *Balar* was one of their kings, and *Cam Bhalair*, in the north of Ireland, commemorates him; one of their queens was named *Cethlenn* (*Kathlena*), and her name is preserved in *Enniskillen*, denoting *Island of Cethlenn*. He was the wife of *Balar*, of the Amorians fought and inter-which, and with the other

the Piets of North Britain against the Britons, and
 he planted a Scottish or Gaelic colony in the north
 of Britain from Antrim county, named Dalriada,
 that is County Antrim, from which they had come,
 and for a length of time was a sub-kingdom under
 kings of Ireland the mother country, but latterly
 separate to the Irish over-king, and set up an inde-
 pendence.

Mr. HYNES said they had had a rather evening, and the paper of Mr. MacLean dealt with one of the most complicated problems of anthropology, but it is often said that the canons of anthropology were as different as the languages of each other. The strictest of these canons, however, or

effects of mixture of races. Professor Huxley, a former president, and Dr. Beddoe, the present one, had shown there was a continuous element in the races of these islands, and that there were great evidences of relationship and identity throughout the populations. Dr. Beddoe was inclined to recognize the basis resulting from the anterior population as Iberian, adopting the Roman suggestion. Under all circumstances the Celts would be regarded as a later and intrusive population, and of this their languages gave testimony on their decline. Here philology came in, and Professor John Rhys, Mr. MacLean, and others had shown in the Celtic elements evidence of an Iberian philology and mythology. The Iberian antecedents were further illustrated by the statement of the historian Bede as to female succession among the Picts, explained by the doctrines of exogamy promulgated by Mr. MacLennan. The Iberian populations here as elsewhere in Europe used many languages and when a sole language as Celtic came in contact the polyglot condition was swept away. The spread of great dominant languages in east and west marked great historical and anthropological epochs. Hence we find Celtic widely adopted in these islands, and by people of different races. It did not necessarily follow that any great invasion of Celts took place, like the invasion of Italy by the Gauls. On the other hand, the Iberian populations would show a weak affinity for the Celtic languages. They accepted Latin and abandoned it, they accepted English and Dano-English, and in Scotland this is readily seen, for it became an English-speaking country less by the influx of the English, than by the abandonment of the Pictish and Celtic languages. It is to be noted that the exogamous Iberian more readily intermarried with immigrants and strangers, and the Danes and English and Normans were largely introduced in Scotland. In these investigations place names afforded a mass of material, and it was a great advantage to have them discussed by members of the modern school, like Mr. MacLean and Dr. MacNeill, men not only acquainted with the old literary Gaelic, but having the farther advantage of knowledge of the spoken language.

Dr. MACNEILL, in acknowledging a vote of thanks for undertaking to read the paper of his friend, Mr. MacLean, spoke of the gratitude due from Highlanders like himself to the labours of the members of the Anthropological Institute, who had written on the pre-Celtic and Celtic period of the history of the British races. He had personally found the volumes of their "Journal," of the utmost value in connection with some historical sketches which on occasion he had undertaken to supply. In the case of difficult portions which the recognized historians were either utterly ignorant of or confused as to, he found the papers of the Institute of very great help. Mr. MacLean was one of the very few in Scotland who were so competently with the subject of his paper, and he was in a position to throw much light on to their discussion.

principles already illustrated by their Chairman, was to greatly extend the bounds of their knowledge of those early ages of the ancient peoples in these islands. Indeed the clear gains already made would fill an ample volume. Mr. MacLean's paper, in its discussion of the ancient terms which indicate the close connection that existed in early times between Albin and Erin, would largely help to a definite conclusion respecting the origins of those much-discussed peoples, the Picts and Scots.

EXHIBITION of a SKULL dredged on the MANCHESTER SHIP CANAL WORKS.

By ISIDORE SPIELMANN, F.S.A., M.A.L.

THE skull, which has been lent to me by Mr. James Abernethy, the Consulting Engineer to the Manchester Ship Canal Works, was found during dredging operations at a place called "Frodsham Score" in the township of Frodsham, and near the River Weaver.

It was found at a depth of 27 feet from the surface in fine sharp sand, and as the work at the spot named was being executed by manual labour, the skull rolled out from its resting place, as the sand in front of it was removed. A section of the soil, in which the skull was found, shows:—

1 foot of earth,
6 feet of red clay,
3·6 feet of blue silt,

and the rest fine sharp sand, under which runs New Red Sandstone the entire length of the canal works, and which crops up suddenly here and there.

Dr. Garson, who has measured the skull, finds it is 174 mm. long by 138 mm. broad, giving a cephalic index of 79·3.

There are, he says, no very characteristic marks about it, which could enable one to say with certainty to what race it belongs, or the period to which it belongs. It is not a long-barrow period skull, but rather a Celtic one, though not a very pure type. It is probably not more than 2,000 years old at the very utmost, and very likely much more recent.

Dr. Garson also says that objects found in the strata in which it lay must be the chief guide in determining the period. Unfortunately, nothing has been found except some red deer horns, and a canoe made in one piece in oak, which has been sent to the Manchester Museum.

The chief characteristic which leads one to suppose it belonged to a later period than the early bronze age is the absence of the large superciliary ridges found in the pure Celts.

I am informed that such types of skulls have been found in the bed of the Thames in clay, and are generally well formed.

Dr. Reeves, of the College of Surgeons, agrees that the skull is that of a young man aged about 23, and he is of opinion (as are some other surgeons) that the fractures to be seen at the back were caused at the time of death, and actually caused death.

It would be interesting to know *what kind* of instrument could have inflicted these fractures.

Some members of the Geological Society consider that the spot where the skull was found was formerly the bed of the River Weaver, and which has since changed its course. This they gather from the quality of the sharp river sand.

DISCUSSION.

Prof. RUPERT JONES thought the skull did not belong to a very remote period, and that, being buried in simple river sand, how long ago it was deposited would be very difficult of determination.

Mr. T. V. HOLMES said that he should like to call attention to the extreme uncertainty of the age of objects found in river deposits. A few years ago he had visited, in the company of Mr. Whitaker, the excavations then being made for the docks at Lynn. There, in gravel, at a depth of 12 feet from the surface, had been found a large number of the soles of shoes or boots, together with some old-fashioned tobacco-pipes. These objects, in spite of the depth at which they appeared, could not, however, have been more than from one to two centuries old. They had been deposited in an old channel of the river, which had changed its course since their deposition.

APRIL 22ND, 1890.

FRANCIS GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

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- From the EDITOR.—*The Journal of Mental Science.* Vol. xxvi. No. 117.
- *Science.* Nos. 372-375.
- *Revue d'Ethnographie.* Tome viii. No. 3.
- *Revue Scientifique.* Tome xlv. Nos. 13-16.
- *Bullettino di Paletnologia Italiana.* Tomo v. No. 12.

DR. JACQUES BERTILLON, the chief of the Statistical Department of the Municipality of Paris, described and demonstrated the Method now practised in France of identifying Criminals by comparing their measures with those of convicted persons in the Prison Registers. The address was delivered in French, and translated orally by Dr. Mouat.

NOTES on M. BERTILLON'S DISCOURSE on the ANTHROPOMETRIC MEASUREMENT of CRIMINALS.

By F. J. MOUAT, M.D., LL.D., F.R.G.S.

THE measurement of the various bony parts constituting the framework of the human body has long been employed for the determination of races, the identification of human remains found in geological strata, and other indications having no geological significance, long before Anthropology—the natural history of mankind—became a special branch of science in our own time. They are the only means of determining the antiquity and place in nature of Man, which the changes caused by time and the agencies in operation in forming and fashioning the earth up to the present time, have left us.

Few branches of ethnology in its restricted sense have been cultivated with so much success—not the least useful outcome of which is the Institution in which we are now assembled.

One of the most interesting examples known to me of the use of bones for the purpose of personal identification occurred but a few years since, during the rebuilding of the Church of St. Peter's in the enclosure of the Tower of London. You may remember that in it were buried the bodies of many illustrious persons executed in the Tower some three centuries since, and as it was necessary to disturb the place of their sepulture, Her Majesty gave strict orders that any remains which might be discovered of those persons should, as far as possible, be identified, treated with every reverence, and reinterred in places known to have been occupied by them, after examination. I was privileged to assist in this examination, and having, a few years ago, prepared and published for the Government of India in English and Hindustani, an illustrated work on anatomical and educational purposes, I had paid much attention to the subject. It was singular to observe, in the careful sifting of the earth from the places of sepulture, that not a particle of the iron metal used in the coffins was found, while the bones were in a wonderful state of preservation.

were those conjectured to have belonged to the unhappy Queen Anne Boleyn. On arranging those of the head on a sheet of paper, in their natural order, and comparing them with the Chandos portrait of that illustrious lady, it seemed almost possible to reconstruct from them the features of life. Among the bones was an unusually large thigh bone of a woman, the only fragment of her body that was discovered. From the position in which it was found it was supposed to have belonged to the Countess of Salisbury. Those interested in such matters will find all information regarding it in the work of the late Mr. Doyne Bell on the subject.

In France the most successful recent cultivators of anthropology were the elder Bertillon, Quatrefages, and Broca, the founders of the existing School of Anthropology in Paris. The latter, in his learned article on the subject in the "*Dictionnaire Encyclopédique des Sciences Médicales*," remarks, regarding certain of the methods employed, that in order that the statistics furnished and published should have the value of fixed standards, it is above all things necessary that all observations collected and recorded, should be obtained by strictly uniform procedures. In explaining the contradictory results made known by different authorities regarding, for example, cephalometry, cranial angles, &c., all factors well adapted for statistical use, M. Broca found that the differences were nearly all due to diversity of procedure and different points of departure. It is then, he says, indispensable to adopt for every mensuration a constant and invariable procedure, sufficiently simple to be understood by all observers not possessed of scientific skill. An example known to me of an important fallacy was in the celebrated Professor Tiedeman's plan of measuring the capacity of the skulls of different races, by taking the whole of the interior, with no separation of the brain space from that of the cerebellum.

To the sons of the elder Bertillon is due the application and record of the anthropometric method to the identification of offenders before and after trial, of which the originator is M. Alphonse Bertillon, who has directed its working since its introduction, and his brother Dr. Jacques Bertillon, the chief of the statistical department of the Municipality of Paris, who is its recorder.

The key note to the plan is the perfect identity of a system of individual examination by simple uniform methods, beyond the reach of fancy or fiction, or imperfections of memory or observation. These are applied to certain fixed parts of the body carefully determined, and multiplied by application to a vast number of individuals taken at random, as criminals must

of necessity be. The plan has been worked in Paris with so much success as not to have been attended by a single failure since its introduction in 1882, among the many hundreds to whom it has been applied, as I shall presently endeavour to show you.

Simple as the method now seems to be, its practical application occupied its discoverer for four years with constant study and observation, as M. Alphonse Bertillon tells us.

With this preamble, I shall now proceed to the immediate subject of my discourse, dividing it into two distinct parts, in both of which I can only be the mouth-piece of the authorities whom I shall put in evidence, as much as possible in their own words. Having had no personal knowledge of its working, I shall not attempt to exercise any originality in its treatment, but adhere closely to my text.

The first part will naturally be devoted to the author of the system, whose views were explained and illustrated to the International Prison Congress held in Rome in 1885, and are exceptionally valuable as embodying his personal experience and the steps by which he arrived at his conclusions up to that time.

When there, the system had been comparatively but a short time in effective operation, but the difficulties connected with its working had been satisfactorily overcome. M. Bertillon explained it in detail at Rome, illustrated it, and I have been put in possession of his views, which have undergone no change since, as I have been informed.

My personal knowledge of its working is confined to having witnessed a successful exhibition and demonstration upon a prisoner arrested the previous evening, and at that time unknown to and unrecognized by the department. It occurred during the meeting of the International Statistical Congress in Paris, in October last, and was witnessed by many others at the same time.

I was so strongly impressed with the value and importance of its application to the identification of criminals, with special reference to their antecedents, that I asked Dr. Bertillon if I would give a practical illustration of it in London, which I readily and kindly consented to do.

That he has been unfortunately unable to fulfil his promise in circumstances known to you, may be a matter of regret.

* Dr. Bertillon had intended his domestic routine, but he fortunately the day of meeting of the Society, as they were, when the certainty of it

to come to London, if that opportunity left the north side

us all, both on account of its cause and its consequence—a regret of which I think I may fairly take the greatest share, as upon me has unexpectedly fallen a task in which I can but imperfectly represent him and his brother on this occasion.

During my long connection with prison administration in India, nothing impressed me more strongly than the need of some unerring test of the identity of habitual criminals, with special reference to their re-convictions and the fresh crimes committed by them. Organized bodies of criminals, some hereditary, and all more or less dangerous, required special agencies for their detection and repression, such as what is known there as the Dacoity Commission, which afforded abundant proof of how important a factor this identification was. Such a means of stamping out gangs of robbers there, and the periodical outbreaks of burglary in this vast city, would in my belief have more influence in rendering it difficult and dangerous to live by criminality as a profession, than any of the sentences passed, and disciplinary measures following them.

The powers of human observation alone are very limited, and the correct recollection of the individuality of persons only occasionally seen, even by the sharpest of our detectives, is so rare, as to fail entirely times out of count when put to a practical test in a Court of Justice. How difficult personation again is to detect, has often been seen, never probably so strikingly as in the case which occupied so much public attention a few years since. Mistaken identity is by no means unknown even in ordinary life, without any suspicion of wrong-doing, as has occurred to myself twice of late years, once in Germany, and a second time in this city. In both cases I had the greatest joy in satisfying my supposed friends, on hospitable thoughts that I was not the real Simon Pure. The first was a comedy of errors, which might disturb the gravity of this if were I to relate it.

Discovery and use of photography seemed at one time to afford an infallible test of identification. Although more exact than any other method then in use, it has failed either to be reliable, or on the large scale manageable. Individuals not only undergo subtle changes of feature and form as age advances, and expression, on which so much reliance was once placed, can be so completely changed by a clever culprit, that however completely the fleeting impression produced by any of the instantaneous processes now known can be fixed on the negative, it often fails to secure the certain recognition on which alone absolute reliance can be placed. Yet photography may be said still, within reasonable limits, found useful—as I found in

so remarkable an instance in New York when I was there in 1881, that I am tempted to relate it to you.

By a trick played upon travellers, and well known in the commercial capital of the States, but at the time unknown to me, I was swindled by an individual whom I had once before seen in England. I obtained an introduction to the Chief of Police to aid me in obtaining restitution, and he referred me to the head of his detective department. This genial Irishman, for he was from the Green Isle, asked me to describe my man. I did so to the best of my ability. He then opened a revolving cabinet containing, if I remember rightly, some 1,600 photographs of persons leading a criminal life in New York, who had been in trouble, and were known to the police. After turning over several of the revolving leaves, he put his finger on a photograph and said "That's your man." I believed he was, so he telephoned for him, and at eight the same evening I saw and identified him, and the next morning full restitution was made to my great surprise and contentment.

The greatest puzzle in identification used to be, and probably still is in this country, the assumption of false names, in the multiplication of which the search through a large number of photographs is perfectly useless. This is said to have actually happened in Paris, when 100,000 photographs have been collected by the police. Photography, therefore is now relegated to a secondary position, and only used as an aid to identification established by other means.

The basis then of the anthropometric system is to obtain measurements of those osseous parts of the human body which undergo little or no change after maturity, and which can be measured with extreme accuracy, to within so small a figure as to be practically exact. These parts are the head, the foot, the middle finger, and the extended forearm from the elbow.

M. Bertillon commenced with a general explanation of the subject, and its special application to the identification of professional criminals, and the detection of the various means adopted to escape recognition. He then detailed his method of procedure, which is embodied in the record of the *Munier Statistics of Paris for 1887*, from which I prefer taking it.

He then proceeded to describe the instruments used in measurements, which will be performed presently.

In his concluding remarks on this head, he showed rapidly the accumulation of proofs of identification, obtained from small beginnings, so that up to August, 1887, 1,500 identifications had been established.

Upon the subject of measurements affording a more reliable

basis for identification than photography, the remarks of M. Bertillon are particularly valuable, and deserving of reproduction in his own words. The objection, he says, of the extension to the provinces of this method would be the great cost of organizing a photographic service similar to that of Paris, and he pointed out by what modification of details it could be dispensed with as an essential factor. He pointed out how a vast experience in human physiognomy is required to recognize in many of the photographs which he exhibited, that they are the likeness of the same man taken at different times. Nevertheless, he adds, that those photographs were all taken in the same studio, by the same photographers, with the same apparatus, and as nearly as possible at the same hour in the morning. How much more marked would the difference be, if all these conditions were materially altered.

In this sort of inquiry a photograph in profile is far better than one of full face. The outline of the forehead, the nose, and above all the ear, give an unalterable form. In some, every trace of resemblance had disappeared. Any change in the form of arranging the hair, beard, &c., complicates the matter in adults.

For this, however, the remedy is to place a piece of paper over the hair and beard in both cases, and you have the same face in both. The officials employed in searches, notwithstanding their dexterity, now make use of the figures alone, so that photography is now of hardly any use, and is only employed as a means of check.

Again, some who oppose being photographed, willingly allow themselves to be measured; but their refusal is disregarded. A card without the photograph is classed in the ordinary way, and the man is arrested and comes under another name; the measures are a guide to the card, instead of the photograph.

"We must bear in mind," he continues, "it is not a question of convicting a man because the size of his head, &c., is the same as that of another man. We are simply an office for information. We furnish a name, that is to say, a clue to the investigation. It is for the authority who tries the case to obtain all the further particulars necessary for the trial of the prisoner, in the usual manner. If the information thus provided by anthropometry is confirmed by such additional evidence, the result is absolute certainty for the ends of justice."

For our part, he continues, so certain are we of the correctness of our work, that we purposely refrain from communicating to the prisoners the discovery of their aliases. We only listen to what they say. The search is mostly made when they are not present.

The note containing the information regarding their antecedents, is sent direct from the department to the Juge d'Instruction, who thus makes use of the information regarding the antecedents of the accused, unknown to him, and it aids materially in his proceedings and decision.

At the time M. Bertillon wrote this, there had not been a single error in the 700 notices sent to the judicial courts.

M. Herbet, the General Director of the Prisons of France, from a knowledge of the working of the system, did not hesitate to introduce it in the whole of France, so successful had it proved.

More measurements might have been taken had it been considered necessary, as various other parts of the body would afford different measurements of similar character to those employed—such as the forearm, the length and width of the ear, the height of the bust, the length of all the fingers of the hand, &c.

But when the seven measurements in practice enabled 60,000 photographs to be reduced to series containing 10 in each, further sub-division certainly did not appear to be necessary, or worth the additional cost it would entail.

M. Alphonse Bertillon shows how the further sub-divisions may be obtained from the new measurements referred to above; but nothing in reality can be gained by going beyond the results already obtained, which have proved sufficient for all practical purposes.

Great importance in France is attached in addition to distinctive marks on the person, which are recorded with great care to secure accuracy.

M. Bertillon again advocates classification by ages in decimal periods. He does not, however, himself believe that there is anything to be gained by increasing the number of measurements, or substituting fresh ones for those in use.

The objections to his system urged were also considered in his discourse. Most of these have been answered by the success of his plan, and he is of opinion that it is better to leave it to time, to show what indications may safely be omitted as having been proved to be defective or unnecessary. It is easy enough

classification as his to suppress or strike out of the collection any particulars found superfluous. On the other hand it is manifestly impossible to add further towards additional particulars. The question of the number of periods in France, fixed by M. Bertillon that in

every country by its own laws. French judicial proceedings are certainly by no means in accord with ours.

This is a part of the question which I am not qualified to consider, yet whatever will accelerate judicial proceedings in criminal matters appears to me to be deserving of the consideration of the judicial authorities, as well as of the legislature. It is abundantly evident from our police reports, and the constant recurrence of demands for further enquiries as to the personality and antecedents of persons brought before the courts, that some more certain and rapid means of identification are required than those in use, and my belief is that the remedy will be found in the anthropometric method, or such modification of it as may be found consistent with our procedure in all such methods.

In conclusion M. Bertillon discussed the question of its prison and international relations, remarking, I think correctly, that the first step towards reforming a prisoner, rests on a knowledge of his antecedents. In prison, as in a court of justice, are we to treat the habitual criminal and he who has committed his first offence, in the same manner? The concealment of a man's identity entails again a prolongation of his detention before the determination of his case, as most offenders, whether old or new hands, are anxious to know the worst that can befall them as soon as possible, and where the law admits of it, prefer a summary trial to being relegated to the Sessions, not so much from fear of a more severe sentence, as of a wish to be done with it, even if there is a better chance of acquittal with the aid of a jury, and greater clemency of judges. This I was often told by European prisoners in India when released; and they came to me, as they generally did in the absence of any Prisoners' Aid Society, to assist them, either in making a fresh start, or in getting out of the country.

The extension of the method to other countries would aid materially in the detection and punishment of men of different nationalities, who in these days of rapid and cheap locomotion change their venue, and seek new fields in which they are unknown, for continuing their depredations. The remarkable disappearance of English pickpockets from Paris, where their measurements and photographs rendered them easy of recognition, is a striking proof of the advantage of the system. From what was told to me by men who had been imprisoned in England, and re-convicted in India, without any knowledge of their antecedents, some of the decrease in the number of criminals at home may possibly be accounted for.

Upon this point, M. Herbette, the Director of the Penitentiary Department of the Ministry of the Interior in France, remarked at the Congress in Rome, that "Crime becoming in a

certain way professional in the hands of certain individuals who know how to take advantage of the progress of our civilization to escape repression, it is natural that society should utilize the discoveries of science to thwart their devices. The practical application of M. Bertillon's method has entirely fulfilled the hopes inspired by the theory.

"In Paris, Versailles, Milan, Poissy, Lyons, &c., the process was at work in its integrity. A few days had sufficed to teach the warders. In the less important prisons, it is considered sufficient to note in the jailor's register, the cephalic diameters, the length of the middle and third fingers of the left hand and the left foot. These indications are found sufficient to baffle all attempts at falsification of identity. The executive of foreign countries would, on application, be furnished with all information and documents which could assist them in adopting the new method."

He then proceeded to indicate other conditions of life in which it could produce results of extreme value and importance, far beyond the pale of its application to the identification of criminals. But as these are all more or less speculative, it will, I think, be sufficient for the present to limit its application to the field in which it has been so eminently useful, until it has proved to us what it has demonstrated to our neighbours. We are an eminently practical people, although slow to adopt new ways, but we are not slow to see extensions of usefulness when satisfied of their value and applicability.

The Official Report of the Municipality of Paris on the Working of the System to the end of 1887.

History.—The anthropometric identification of criminals was inaugurated in the dépôt of the Prefecture of Police at the end of 1882 by Monsieur Camescasse, Prefect of Police, and the Secretary, General M. Val Durand, on the plan suggested by M. Alphonse Bertillon, and submitted to the Administration in 1879.

Since that time, thanks to the initiative of M. Herbette, Director of the Prison Administration of France, its extension to the rest of the country is in process of organization. Ministerial circulars to that effect were issued in November, 1885, and in April, 1888. They are appended to the report of the municipality under review.

Its immediate object is to facilitate the carrying out of the law of the 20th June 1875, by establishing a sure and rapid means of identification of relapsed criminals, and of the constantly

increasing recourse to the assumption of other names of persons known to them, to evade the consequences of a repetition of convictions of crime.

Personnel.—The service of identification of convicts consists of two sections employing corresponding means of investigation: 1st, an anthropometric section, and 2nd, a photographic section. The establishment of each of these sections consists of eight agents, among whom are a brigadier-corporal on the permanent staff of public safety, with a chief inspector having authority over both departments, and a *chef de service* (clerk).

The functions of the anthropometric section are to take a certain number of measurements of osseous parts fixed upon, of persons both in the prisons and the dépôt—that is, before and after trial and conviction, and then, using the figures thus obtained as a basis, to class the photographs of those individuals in regular order, so as to render it possible to find easily afterwards, among hundreds of portraits, that of a relapsed criminal concealing his identity under a false name.

Explanation of the system.—Taking as a basis a collection of 60,000 photographs, they would be grouped as follows:—

Photographs of small heads	..	..	20,000
„ „ medium heads	..	..	20,000
„ „ large heads	..	..	20,000

Each of these three divisions of 20,000 would be redistributed, following the same principle, without any reference to the height, into three series, according to the size of the head of each, as follows:—

That of the small heads, 6,000 photographs, and something over.

That of the medium heads, 6,000 photographs, and something over.

That of the large heads, 6,000 photographs, and something over.

These sub-divisions of 6,000 will be divided into three groups, of the length of the middle finger of the left hand, and would then consist of:—

Little middle fingers, 2,000 photographs	
Medium „ „ „ „	
Large „ „ „ „	

The length of the foot would furnish a fourth indication, which would divide each of the packets of the preceding photographs into series of 600, which can be reduced further into smaller elements based on the length of the forearm taken

from the elbow, the length of the little finger and of the ear, the colour of the eyes, and the height of the individual, &c.

Thus, by means of six new anthropometric data (the sex, height, age, and colour of the eyes, having long been in use), the collection of the 60,000 photographs of the Prefecture are ultimately divided into groups of ten, which can be run through rapidly.

It must be added that to maintain uniformity in the figures of such a system of classification in the first instance, and before any measurements are taken, a constantly recurring element is the presumed date of birth, within a limit of twenty years; here the individuals born from 1839 to 1849; next those born from 1850 to 1860, then 1870 to 1889, &c.

Suppose then, we have to verify in the collection, if an individual has not been previously classed under a different name. It is self-evident that, in consulting the division of length of head, corresponding to that of the person under examination, and in stopping in that division at the sub-division of this size of head, to seek afterwards the sub-division of his middle finger, then that of his foot, and that of his length of arm, we shall arrive, by elimination after elimination, at the final packet which ought to contain the photograph sought for—if it has previously been classed, be it understood.

When the figures are found to be on the boundaries of divisions, the examination must be made in the adjacent divisions. If several of the measurements are together upon the boundaries, we must take into account the multiple combinations to which such researches must give rise.

Anthropometric classification.—The qualifications—small, medium (mean), and great—of each successive elimination, are rigorously determined by figures. In order that the quotients thus obtained be approximately equal, it is absolutely necessary that the numerical limit of the category medium (or mean) should be more restricted than the categories small and great. Suppose, for example, we begin our eliminations with the height: the figure of middle height should contain all individuals 1 m. 62, to 1 m. 67, whilst the great would extend from 1 m. 68, to the giant of 1 m. 70 metre, and the small height to 1 m. 57 metres.

The division of the middle category shows that to realize a medium category, the mean, by

He then proceeds to explain the mode of arrangement of the photographs in the cupboards in triple divisions for readier reference and search; but, as it could scarcely be rendered intelligible without a diagram or a model, I do not reproduce it. It is extremely ingenious, and the plans would, I am sure, be readily supplied to any authority asking for it.

Photography.—The photographic proof added to these before-mentioned is a profile of the right side, and one of the full face slightly turned to the right, the two to an exact scale of one-seventh. The proceeding is now, however, considered of secondary importance, and is used only as a further test to secure absolute accuracy.

Particular marks.—All evidence of scars, moles, or characteristic indications of any kind are recorded on the backs of the photographs with anatomical precision as to their nature, dimensions, situation, &c. Much importance has always been attached to some of these.

Certainty of the process.—The three recognitory elements of identification, independent each of the other, are:—

1. Mensuration.
2. Photographs (profile or full face).
3. Record of cicatrices (scars).

When taken together they control the identity of an individual for many years with absolute certainty, to such an extent that the employés of this service, when they discover the real name of a culprit concealed under a false account of his civil status, are enjoined not to communicate this result to the offender, but to send the information direct to the proper judicial authority, who thus becomes forearmed as to the real identity of the person, without his knowledge.

On more than 2,300 recognitions thus furnished up to April, 1889, not one has led to confusion, which would at once have been made known, by the accused to the magistrate.

Operations effected.—The undermentioned figures being the annual total of individuals recognized to have been personally examined under another "*état civil*," show the constantly increasing extensions of the operations of this service.

Years.	Number of persons examined.	Number of releases recognised under false names.
1882	225	—
1883	7,336	49
1884	10,808	241
1885	14,965	421
1886	15,703	352
1887	19,140	472
1888	31,349	615

The figures 31,849 in the year 1888 represent nearly the whole number of persons arrested during this period for offences under the common law, and having passed through the dépôt. The *personnel* actually assigned to the service allowed of the extension of the measurements to the 100 arrested, the average number passed through the dépôt every day.

To work rapidly requires that the measuring agent should have the aid of an assistant, to whom he could dictate the figures without leaving his measuring instruments.

Thus worked by two persons, the measuring of an individual takes two minutes, the examination of the cicatrices, or other marks, including tattooing, &c., three minutes, the inscription of the surname and *prénom* (Christian name), age, &c., on the declaration of the subject, two minutes. Total for the whole operation, seven minutes, or eight persons in an hour. If carried on without interruption from 9 a.m. to midday, two agents could complete 24 operations ($8 \times 3 = 24$).

Four squads, of two agents were sufficient to complete 100 examinations before midday. It is necessary so as not to interfere with judicial proceedings that the examinations should be completed before the opening of the offices and the courts.

The afternoon is sufficient for the copying of the documents for all official purposes.

It is stated that the habitual offenders have learnt by their personal experience or by the prison talk, that the time for aliases has passed away. Now-a-days it often happens that those confined under false names and measured previously, correct their civil status of their own accord, when they find they are to be taken to the measuring room. It has likewise appeared to us to be useful to add to the descriptive roll for the special registration of this kind of rectification:—*Individuals recognized to have been previously measured under the same name.* This number actually exceeds those identified by other means. Prevention is better than repression.

It is also found better to postpone the examination to the day after incarceration, that they may have a night for reflection on their position, and to recast their identity to the registry office of the dépôt, should they be so disposed.

So that it may be said that by recognitions made every month by the identification it did not have been made by a to the number of the system, also that civil status was also

nature could not be made anteriorly without cost, and without prolonging considerably the time of enquiry).

Another proof of the efficacy of the system of anthropometry is the complete disappearance of dissimulation of identities in the prisons, other than the dépôt, so that whilst in 1884 and 1885, the number of recognitions made in the prison *after conviction*, amounted to 200 or 300 a year, the number of cases of this class in the whole year 1888 was fourteen, of whom ten were of individuals who never having been measured before, were of necessity not recognisable by the service. This leaves four omissions to be distributed among the 31,000 examined in the year.

Motives for change of name.—These among professional or habitual criminals are usually taken to avoid increased severity of sentence on conviction, and in France by deserters from the army or refractory soldiers, who, arrested for a trifling offence, are particularly anxious not to be made over to the military authorities.

The equivalence of recognition on the ground of general interest, is that the arrest of deserters, escaped prisoners, persons convicted by default, is as useful as would be the direct arrest of any of the classes above-mentioned.

The category of evil-doers who most frequently resort to aliases are those most given to indulging in changing of names. In the front rank must be placed the professional thieves of the Anglo-Saxon race, known as pick-pockets. All the individuals of this species, without exception, who have been measured by the department who have since returned, thought it expedient to change their first status: a remarkable result is the number of this sort of thieves has increasingly diminished since the creation of the service of identification; from 65 in 1885, it fell to 52 in 1886, to 34 in 1887, and to 19 in 1888. Having assured themselves that it was impossible for them to conceal their antecedents on arrest, they prefer now, according to their own avowal, new pastures in foreign capitals. [Some of you may remember the amusing examples of pocket-picking in Paris, given by Bulwer Lytton in his novel of "Pelham." The Celts are clumsy apprentices, the Anglo-Saxon past masters in that craft. It also reminds one of the inimitable portraiture by Dickens of the renowned Fagin.]

Sometimes names are changed to prevent disgrace falling upon the family. I was acquainted with many such cases in Calcutta, particularly the poor fellows who died in my hospital, and wished me to communicate their deaths to their

The remainder of the official report from which I have

borrowed all the particulars above noted is devoted to the consequences possible upon the generalisation of the system.

In introducing his remarks on the tables Dr. Jacques Bertillon mentions that, before anthropometry was applied to police purposes, it had been utilized in the solutions of some of the problems which belong as much to mathematics as to natural history.

The Anthropological School in Paris, founded by his father and Professors Quatrefages and Broca, as I have already remarked (for they were all known to me personally) extolled it as a valuable means of investigation in studies of the races of mankind, of the hygiene of infancy, &c. The new theories of the Italian criminalists are, in many points, based on osteometric observations.

These considerations have induced me to summarise in the appended tables the anthropometric documents accumulated in the archives of the service of identification.

We hope they will furnish anthropologists interested in these questions with facts of undisputable accuracy. To this advantage will be added that of furnishing the elements of the mathematical theory of the anthropometrical method, and show on what data we work.

The tables, five in number, are the outcome of the observation of 8,365 persons born in Paris. There is thus, as far as possible, unity of origin. I could scarcely explain the exact nature of these tables intelligibly, but I venture to suggest that they may be published in the Transactions of the Institute should they be deemed fit.*

Conclusion.—I have now placed before you, *tant bien que mal*. I hope an intelligible account of the anthropometric method of identification of criminals, which has now been in use in France for several years, is extended to the whole of that great country, has already been applied to many thousands of persons, and in the 2,300 cases in which efforts at concealment were made, with all the proverbial cunning of the criminal classes, has stripped off the mask of imposture without a single failure. The method is simple, easily learnt and easily applied, can be accomplished with the intelligent agency always at the command of prison and police authorities, and by the facility and rapidity with which its results can be made available for use when needed prevents the vast accumulations of the materials of identification from overwhelming the searches of records, in a man never yet accomplished by any other method employed, dispenses effectually with errors of observation, treachery, memory, the unavoidable fallibility of human testimony, &c.

* The tables are omitted, as they were too voluminous.

when honestly given, and employs strictly scientific methods, devoid of all cruelty, humiliation, and even harshness. The testimony of those parts of the human organization, which are most permanent in their character, and cannot be falsified or changed by any devices of the offender, is surely an unmixed gain to civilisation, and among the most effectual checks to the adoption of a career of crime, as it is the certainty of detection, rather than severity of sentence, which most deters the habitual offenders.

That well-known humorist, and singularly keen and accurate observer, the late Sidney Smith, in speaking of crime and criminals, declared the most vulnerable part of a thief to be his belly. Had he been alive now, I think he would have changed his view, and declared that the most honest part of a thief, or a rogue of any category, was his bones, for he could by no ingenuity however subtle, cause them to lie, when the truth of his identity was in question, and was of use to the cause of justice in dealing with him.

DISCUSSION.

Sir RAWSON RAWSON, after Dr. Bertillon's demonstration, expressed his appreciation of the very interesting communication which had been made to the Anthropological Institute, and referred to the trouble which Dr. Bertillon had taken in coming over from Paris expressly to attend the meeting. He remarked that Dr. Bertillon only arrived in London at 6 p.m. that evening, and that he had scarcely recovered the stability of a philosopher after a rough sea voyage, when he delivered his address.

Dr. Bertillon had mentioned that the speaker had had an opportunity of personally testing the practical use of the method at the general meeting of the International Statistical Institute, held at Paris last year. A brief description of Sir Rawson Rawson's experience on that occasion might be of interest to the meeting.

One afternoon the Institute adjourned to the Palais de Justice, where, under the conduct of Dr. Bertillon, a prisoner was brought in who had been arrested on the previous day. He had given a false name, and declared that he had not been previously in the hands of the police. In our presence, said Sir Rawson, a prison warder took the several measurements already demonstrated by M. Bertillon. This occupied five or six minutes. I was then taken into the adjoining chamber, in which the cards containing the record of the 100,000 prisoners already measured were arranged in drawers and sub-divisions in the manner described. In the first I found a tray of cards in which the two principal measurements agreed; they were very numerous. Under that was a tray in which a third measurement agreed; they were less

numerous. I then saw trays in which a fourth and fifth measurement agreed, and either in the fifth or sixth, in which the number had become quite small, ten or twelve. I found one in which that large number of agreements was observable, and on the reverse were the photographs—full face and profile—by which the identification of the prisoner was completed. On being shown the photograph he acknowledged its identity, and gave his real name. On referring to his prison record, M. Bertillon showed that he was an old offender in another sphere of criminality.

My examination of the cards occupied even less time than the measurement of the individual.

Sir Rawson Rawson, in conclusion, expressed his belief that the method recommended by M. Bertillon was both easy and effective, and that it might be introduced with great advantage in the United Kingdom.

Mr. FRANCIS GALTON remarked that it was gratifying to — from the interesting account they had just heard that the Bertillon system had stood the test of experience so well that its application was extending; also that the variety of features found suitable for measurement or for description was continually increasing. Its growing importance in France, its employment, as we were now informed, in the United States, and even, as he believed, in the Argentine Republic, were evidences of its extension. The investigation of the callosities acquired by artisans in the practice of their several labours, and the marks left on their hands by the tools they habitually used, were instances of recent additions to its processes. There may be room for reasonable doubt among anthropologists whether the precision with which the living body can be measured is quite as great, and whether its dimensions are quite as permanent as they are considered to be by M. Bertillon; and again there may be some hesitation in believing that a very large collection of measures would admit of being so surely catalogued on the Bertillon system as to be ransacked with a promptitude at all corresponding to that with which a word may be found in a huge dictionary. Nevertheless there can be no doubt as to the truth of the main ideas upon which the system is founded, namely, that individuals differ largely and for long periods of their lives, in very many separate particulars, some of which admit of direct measurement, and others of being described, with a considerable degree of accuracy, and that these measures and descriptions admit of being catalogued and classified by the ingenious Bertillon system in a way that vastly diminishes the labour of search for any particular set of measurements; also, that the anthropomet system adds vastly to the precision with which the identification of a person may be established.

MAY 13TH, 1890.

J. G. GARSON, Esq., M.D., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of the following gentlemen was announced :—

STANLEY EDWARDS, Esq., F.Z.S., F.R.G.S., F.E.S., of Kidbrooke Lodge, Blackheath.

W. SCOTT LANE, Esq., M.D., of the Royal College of Surgeons, Edinburgh.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

From DR. F. J. MOUAT.—H. Busch's Journal of a Cruise amongst the Nicobar Islands.

From the U.S. GEOLOGICAL SURVEY.—Seventh Annual Report, 1885-86,

From BARON A. VON HÜGEL.—The Nanga of Viti-Levu. By Mr. Adolph B. Joske, Fiji. With Plate xvii. Note by Baron von Hügel.

From the AUTHOR.—Notes on the Pearl and Chank Fisheries and Marine Fauna of the Gulf of Manaar. By Edgar Thurston, C.M.Z.S.

From the ASSOCIATION.—Proceedings of the Geologists' Association. Vol. xi. No. 6.

From the ESSEX FIELD CLUB.—The Essex Naturalist. Nos. 10-12. Vol. iii. Nos. 1-3. Vol. iv.

From the INSTITUTE.—Proceedings and Transactions of the Nova Scotian Institute of Natural Science. Vol. vii. Part iii.

From the ANTHROPOLOGICAL SOCIETY OF WASHINGTON.—The American Anthropologist. Vol. iii. No. 1.

From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vi. No. 5.

From the YORKSHIRE PHILOSOPHICAL SOCIETY.—Annual Report. 1889.

From the SOCIETY.—Proceedings of the Society of Biblical Archaeology. Vol. xii. Part 6.

—Proceedings of the Royal Geographical Society. Vol. xii. No. 5.

—Proceedings of the Royal Society. Vol. xlvii. No. 238.

—Journal of the Society of Arts. Nos. 1953-55.

—Société de Borda, Dax; Janvier-Mars.

From the SOCIETY.—Mittheilungen der kais. königl. Geographischen Gesellschaft in Wien. 1889.

From the EDITOR.—The American Antiquarian and Oriental Journal. Vol. xii. No. 2.

— Science. Nos. 376, 377.

— Revue Scientifique. Tome xlv. Nos. 17-19.

— Bullettino di Paletnologia Italiana. Tomo vi. Nos. 1, 2.

MR. G. F. LAWRENCE exhibited two human skulls recently dredged up from the bed of the Thames.

MR. A. P. GOODWIN exhibited some fire-sticks from New Guinea, and made some observations on the Natives encountered on Sir William MacGregor's expedition to Morrocco.

MR. FRANCIS GALTON exhibited a new instrument for measuring the rate of movement of the various limbs, and read the following note:—

A NEW INSTRUMENT for measuring the RATE of MOVEMENT of the various LIMBS.

By FRANCIS GALTON, F.R.S.,

Vice-President Anthropological Institute.

[WITH ZINCGRAPH.]

DIFFICULTY has been found in making courses of experiment on the rates of muscular movement in different persons. This is partly due to the tedium of observing with a blackened cylinder and a vibrating tuning fork, or with a broken electrical current and a Hipp's chronograph, or other apparatus of the kind. More especially is it due to the violence and to the somewhat uncertain direction of the movements to be measured.

In the laboratory that I set up in 1884 in the International Health Exhibition, the instrument used for the purpose was a stout sliding bar, struck forward by the fist. As soon as it started, it released a fixed spring that had been deflected to one side, and which thenceforward vibrated across the bar. A pencil attached to the free end of the spring, left a sinuous trace on the bar, and the number of bends in the trace in any space was proportionate to the time taken by the bar to travel through that space. By using an appropriate scale the absolute mean velocity during any given period was easily read off.

But it proved that few persons delivered their blow in a straight-forward manner. They usually struck the deal bar to one side and often broke the apparatus, and when I replaced it with a bar of harder wood, they still broke it, and hurt themselves rather severely at the same time. Experience showed the necessity of eliminating this difficulty and danger. Whatever may be the violence or the direction of the blow, the recording apparatus should be safe, and the person tested should be unable to injure himself.

The method adopted in the present design is perhaps most simply explained by referring to the action of a spring measuring tape. When the end of one of these is pulled out and then let go, it springs sharply back, the tape running cleanly through a slit. Suppose for a moment that it runs back more quickly than the hand could follow it, then, if the end of the tape is retained in the hand that gives the blow, the tape will run through the slit at the exact rate at which the blow is given. It cannot go quicker, because the hand retards it; it will not go slower, because the spring urges it on. The hand need not be near to the tape; it may be connected with it by a long thread, and the action of the apparatus will remain unaltered. The instrument then would be quite out of reach of harm. - In this way, a violent movement full of danger to most instruments is translated into a swift movement of a mere thread, running smoothly between eye holes in a straight line.

Having thus got a thread moving smoothly with the same velocity as the arm, the next question is how to measure that velocity. I do it by gravity. The thread during part of its course is arranged to travel vertically, and passes through a small inverted cone, to which it is fixed. The thread then passes loosely through a cylindrical bead of white ivory, whose bottom rests on the face of the cone. When the moving thread is suddenly arrested, the bead is tossed up to a height dependent on the velocity of the thread at the time when it was arrested. The momentary pause of the white bead, after it ceases to ascend and before it begins to descend, enables the height it has attained to be easily read off, upon an appropriate scale, which tells at how many feet per second the string was moving at the instant before it was checked.

The instrument that I show has worked well, but doubtless admits of much improvement in detail. It is exhibited in its present early stage for the benefit of criticism and suggestions.

The proportions of the instrument have been guided by the fact that the issuing thread must be at about the level of the shoulder, and that the scale must be opposite to the eye of the experimenter. It was also thought best to arrange the scale so

as to show velocities between, about 5 feet and 30 feet per second. To do this, and at the same time to keep the scale of a convenient size, the velocity of the bead must be mechanically reduced to a fraction of that of the free end of the string. In my instrument I have reduced it to one-third. This being premised, the principle of the machine is here shown in diagrammatic form. In the actual machine there are some differences of detail, and an adjustment is added for readily bringing the bead to the zero position, when the machine is at rest. A piece of thin pianoforte wire is interpolated for the bead to run on; and the check is given by a small india-rubber ball on the string striking home against a fixed cork buffer. It is not of the least consequence that the check should be sharp; all that is necessary is that its motion should *begin* to be checked when the bead is at zero. Then the bead leaves the cone, and henceforward behaves as a free projectile.

We must satisfy ourselves that the spring can pull the thread more quickly than the arm can follow. This is easily done by seeing that the ball is tossed up considerably higher, when the string is allowed to run home unrestrained, than it does when it is held in the hand that delivers the blow.

I find considerable regularity in the readings, when the conditions under which the blow is delivered are similar, but a small alteration in those conditions may make a considerable alteration in the results. It is remarkable how greatly a movement of the wrist may increase the velocity of the hand. We see an effect of this kind in a thrown ball, which travels vastly quicker than the wrist of the hand that throws it. The question of the best measures to take, and the best conditions under which to take them, deserves careful consideration, and I should be grateful for suggestions. One good test position seems to be, to stand behind, and slightly pressing against a horizontal bar that lies lower than the elbow, to plant the feet in chalked spaces, the left foot parallel to the bar, and the right foot pointing to the front, then reaching forward as far as the bar conveniently permits, to seize the tightened string and to draw it back to the vertical post to which the bar is fixed, and from that position to deliver the blow.

For calculating the scale, let v = the velocity of the cone in feet per second at the moment before it is checked at the zero point, and s = the height in inches to which the bead will be tossed, then $s = v^2 \times 0.186$ inches. By giving successive values to v the scale is easily calculated. As in my instrument v is only one-third of the velocity of the arm, we have to calculate for values of $v = 1$ foot per second, 2 feet per second, &c., in order to find s in inches to which the bead is thrown when

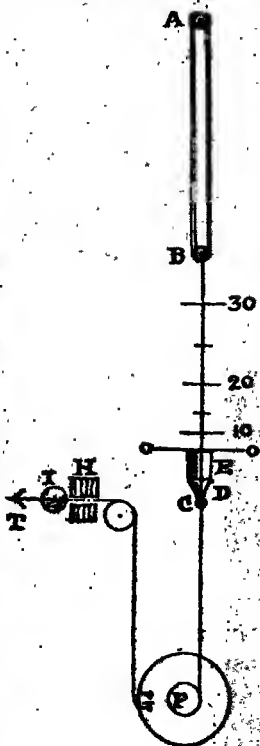
the velocity of the arm is 10, 11, &c., feet per second, and these latter figures must be inscribed as the calculated heights. The actual velocity of a blow being taken at 20 feet per second, the difference on the scale between it and 21 feet per second, is then the difference between 8.28 inches and 9.13 inches, or nearly an inch, an ample and convenient interval. For calculating according to this scale, if w = the velocity of the arm, $s = w^2 \times 0.0207$.

I had hoped to have given more definite results in this paper, but accidental delays in the completion of some carpenter's work have prevented me. Perhaps I may be allowed to add a foot-note before these notes are printed, if there be time and opportunity to do so.

Description of the Figure.

- AB. A stretched india-rubber band.
- BC. Thin steel wire, upon which the ivory cylinder E runs loosely like a bead. The end of BC passes through an inverted cone D, into which it is fixed.
- F, G. Are two grooved wheels fixed together, and turning freely on a common fixed axis. The diameter of F is one-third that of G. A thread passing from C is wrapped a few times round E, to which its other end is fixed. Another thread fixed to F is wrapped a few times round G, and is then carried, first vertically upwards, and afterwards horizontally, by passing over a grooved wheel. It then passes through a hole in a fixed buffer H. On the other side of H it passes through, and is attached to a small india-rubber ball I.

When the machine is at rest the tension of AB causes I to be pressed home against H. When T is drawn out, AB stretches further, D descends, and the cylinder E descends with it. On delivering a blow with the hand that holds the free end of T, G ascends up to the point at which



the top of E is brought level with the zero line. There C stops, owing to I coming in contact with the buffers H. Consequently the ivory cylinder E is tossed up as a free projectile, and the graduation to which it ascends is noted. The number attached to that graduation shows the number of feet per second at which I was moving immediately before its motion was checked.

NOTE, OCTOBER 17.—The instrument has worked regularly at my laboratory after a little experience had suggested some minor amendments in detail. The chief of these was to greatly lengthen the elastic band, by passing it over a pulley at the top and bringing it thence downwards to the bottom of the frame. This greatly increased the uniformity of the strain and it makes the action very smooth.

The person experimented on stands with his back to a wall and strikes at the end of a long feather so placed that when the fist reaches the feather the india-rubber ball strikes the buffer. Care is taken that the wrist does not bend. I have not as yet worked up the results. The machine was made for me by Groves, 89, Bolsover Street, W. F. G.

Dr. G. W. LEITNER delivered a verbal address, of which the following is an abstract by Mr. A. L. Lewis:—

On the ETHNOGRAPHICAL BASIS of LANGUAGE, with special reference to the CUSTOMS and LANGUAGE of HUNZA.

By Dr. G. W. LEITNER, PH.D., LL.D., &c.

DR. LEITNER, in commencing his address, referred to his communications to the Anthropological Society in 1869, respecting the first results of his enquiries in Badakhshan, and to the Ethnological Society in 1870, when he brought to the notice of the Society his Yarkandi, Niaz Muhamed; and also to his communication to the Anthropological Society in 1871, when he introduced to the Society the first of the series of blue-eyed Hunzakuts, the first of the series of blue-eyed Hunzakuts, the first of the series of blue-eyed Hunzakuts.

another race of Dardistan, a Hunza man, but was unable to do so in consequence of his being too much of a savage. The *Illustrated News* had given a picture of him in front of the mosque which the author was building at Woking. There was no chance of making him a really good Muhamedan (the only religion of which he might be got to form a conception); he had been engaged in kidnapping people, but as there was nobody here for him to kidnap, he had become very unhappy, and Dr. Leitner thought it a good riddance when he wanted to go on a pilgrimage to Kerbelá.

The subject immediately before the meeting was one of very great importance. The author had pointed out at a previous meeting that the time was long past when grammatical rules and laws were solely to guide them in the study of language, and that, as the East was brought nearer to them, it would force upon them more and more the necessity of treating languages as living and not as mummies; some reputations might suffer in consequence, and great men who now talked of fifty languages might have to be content with knowing one; but it was very necessary that a study of the customs, history, and associations of races should accompany the study of their languages. In the Hunza language especially, which some had thought to be a remnant of a prehistoric language—the formation of words ran concurrently with some of the earliest conceptions and simplest relationships; how far this would upset or support the theories of Indo-Germanic, or Turanian, or Slavonian cradle-lands, it was impossible to say at present. When Dr. Leitner first brought the materials of the Hunza language home he was told by Professor Weber that he had not shown that it was of earlier date than Sanskrit; he was very sorry for it, but the language could only be what it actually was, and he thought there ought to be a division of labour between those who collected facts and those who speculated on them, and that it was for the Germans, who had elaborated so many conjectures, to elaborate one regarding the Hunza language. Something had indeed been recently elaborated at Munich, but it was a curious instance of learning apart from facts. Dr. Leitner's great aim was to show what a language really was, for there were plenty of scholars in Europe who could point out what it ought to be. Real discovery was to find what existed or was done in a particular place, and to bring back a report of it without favour to any particular school, and to place it before that small part of the public which took an interest in the question. They had an instance in the Hunza of the growth of simple sounds into what in Aryan philology were called roots. If he might borrow an illustration from the English or French he would say that, if they had a

word like "mother," *m* would mean the female element, *a* would be the self, and *ther* would mean the tribe, indicating a state of endogamy in which all grown up females were considered to be mothers, and all grown up men fathers of the tribe. In the same way, sounds indicated a number of customs in that particular race, but of course it was when similar principles were applied to cases nearer home that the results were most startling. Thus, in French, "parents" meant father and mother, and also relatives, just as in Hunza all female relatives were mothers, and all mature men fathers of the tribe. If he were asked what had been done during the years that the subject had been under research since he first brought it before them in 1869, he would say the net result had been favourable to this country, in so far that those countries to which even the collective name of "Dardistan" had then to be given by him, were now brought under British influence. The rulers of those countries were very favourable to him personally, and had welcomed other travellers on his account. It is true, one traveller, Mr. Hayward, was killed, but that was because the Government had neglected the information Dr. Leitner had given, warning him against a certain chief; but, on the whole, these tribes, which had falsely been said to be cannibals, had given a friendly reception to a Government Mission that had followed in Dr. Leitner's footsteps twenty years later, and had followed his advice regarding the spiritual chief of the Hunza sect, who, curiously enough, resided at Bombay. The Dard races were now largely under our influence, and he hoped we should be content with that, because absorption would emasculate them, and render them incapable of defending themselves against Russia, while, if Russia were now to occupy their country, or if we were to attempt to divide it between ourselves and Russia, the resistance offered would be equal to that offered by the Circassians.

In opening up the country to British influence, Dr. Leitner said he had not done so with the view to encourage trade; indeed he had not even mentioned where gold was to be found. The Buddhists thought that the best place for gold was under earth, because when it was brought to the surface it let loose a lot of bad passions, and therefore the Tibetans were anxious to keep us away.

Leaving aside mining or washing for gold, there was no special inducement offered to those who did not be rewarded

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the glories, such as they were, of the past, and prophesy as to the future, and nothing was undertaken without them. If time had permitted Dr. Leitner to go into details, the members of the Institute would be astonished to find how many of Grimm's "Fairy Tales" were translated into daily life in Hunza; but it was none the better for that. There was constant drunkenness even in the mosques, and from the parricides and fratricides that went on, it seemed very awkward to be a relative of anybody there; in fact, it was extremely awkward to be there at all; but for all that, it was a very interesting country, and would amply reward the attention of any member of the Institute. They had a book, of which a Chief had given him a few pages; it was a kind of mystic poetry in a quaint Persian style—so far as the contents were concerned very like some of the writings of the Druses of the Lebanon. The Druses had a sacred covenant of a most unholy nature, not with the deity, but with Hakim, the mad Fatimite ruler of Egypt. The Hunzas one with their "Lord of the Universe," the lineal descendant of the 7th Imam, who lived in Bombay. It was very singular there should be this coincidence between these two peoples. The fundamental idea of both these covenants was the belief in transmigration—that all life is one, and cannot be divided, and that it depends on the character and the predominant elements in a person whether in his future lot he shall return to one element rather than another. These affirmative propositions were, however, framed in such a manner as to make it appear that they simultaneously denied them, for they say, "if you are asked a question of the folly (of religion), reply in this manner," as if saying even so much ought not to be revealed to the uninitiated.

The points that would particularly commend themselves to the Institute that evening were that the study of language could not henceforth be dissociated from the customs, antecedents, and associations, the natural phenomena surrounding, and the history of, the people speaking it. Even with highly civilized languages like Arabic this was the case, for that language had a great number of plurals expressing different circumstances, as, for instance, with regard to camels, whether they were straggling in a line, or were gathered in a circle round a tent, &c. It was better, therefore, to learn the customs of a people, and thereby to gain a knowledge of the language, which would be lasting, because based on living associations, than to learn the language simply as a matter of memory. Professor Max Müller had said the other day that he thought no man could speak more than two or three languages perfectly; this was true, and yet untrue. Those who studied in the way he (Dr. Leitner) had indicated, would find that they could exchange thoughts with others in

many languages, but those who only dabbled in two or three languages did not really know one, nor would they know all the technical terms of one, and, in any case, would be unable to communicate thoughts if they had not the thoughts themselves; therefore the statement he had referred to was partly true and also partly untrue. It was possible to learn a great number of languages if they would emancipate themselves from the tyranny of the present philological school, but they must be studied as living languages, along with the customs of those who spoke them, and not as if they were mumimies.

He had taken the liberty of analyzing the Arabic and Sanskrit of our great scholars, and found them very unlike the Arabic and Sanskrit spoken by those who had the living traditions. The East was coming too near to be played with, and it was to the study of it that he would particularly desire the Anthropological Institute to address its attention; it was upon the lines he had indicated that, while availing themselves of all the treasures of the existing schools, the greatest discoveries would yet be made, and on those lines he hoped to become, in conjunction and in co-operation with the members of the Institute, he would not say a perfect scholar, but a more successful student.

DISCUSSION.

Mr. HYDE CLARKE, who was unable to be present, wrote as follows:—I was very sorry not to be able to attend the discussion on Dr. Leitner's discourse. It is now about twenty years since I first discussed the subject of these interesting regions with Professor Leitner, and I know that he has continuously and laboriously pursued his researches. One point of contact was with regard to Khajunah, on which he had accepted from Dr. Latham a statement at p. 250 of the "Elements of Comparative Philology," of the juxtaposition of Khajunah with Shina and Arniya. I directed his attention to the true philological interest of Khajunah. On remonstrating with Dr. Latham on his representations, he made the excuse for this and other examples of carelessness that this book, and not this alone, was "a pot-boiler." This book is, however, a remarkable work of labour and of reference, even to this day, but Latham, with great abilities, was little careful of literary obligations. His edition of the "Germania" of Tacitus is really a transposition of the materials of Zeno in his "Germania." He had no true eye for language, as anyone can see in the

250, and like many men he was a philologist of the eye, a tongue and ear. This marks the contrast with Dr. o has not only the book knowledge of scholastic learning, but the genuine power of a great linguist in acquiring living languages. As he writes with the other hand,

capacity for studying the anthropological relations, his labours in the Himalayas, of which those with regard to Hunza now referred to are only a portion, are of the greatest importance. Thus his are not only observations, but discoveries, and it is earnestly to be wished that he may pursue his investigations to the full. Availing himself of the peculiar frontiers for such studies as Lahore, like Cardinal Mezzofanti did of the College of the Propaganda at Rome, Professor Leitner has passed under observation the languages and idioms, the jargons and dialects of trades and of wandering tribes in India and the Himalayas, to the great profit of science and the great benefit of our Government. He was in India a centre of constant reference. Once, when ill in bed at Lahore with fever, a chief of police brought, under orders from the Government, five men before him in custody, whom it was desired to identify, as they were suspected of being Russian spies. Having caused them to be released and seated round his bed, and given them refreshments, he proceeded to converse with them, and to establish some basis of confidence. Two of the strangers knew a little Persian, which made a rude channel of communication. They stated that they were Mussulmans, who had been taken by the Russians on the capitulation of Kars, transported to Siberia and kept in captivity for many years, until they had made their escape to Afghanistan after great difficulty. He then proceeded in an endeavour to identify them, and asked them as to their habitations and language, and they stated they were Lesghians of the Caucasus. Fortunately, Dr. Leitner remembered a paper of mine before the Anthropological Institute, in which Lesghian was referred to, and which enabled him to test their statements. On his recommendation the wanderers were passed on by the Government to Bombay, and so as near to their country as it was possible to proceed, joining probably Caucasian refugees in Turkey in Asia. Few are able to understand and to appreciate the scene of Dr. Leitner's labours, and the nature and value of them. Our general conceptions of a region in ancient times, and in the present day, is that it is an area chiefly of one dominant language. Caucasia with its many languages appears to us to be an exception; in fact, it is not so, but the Himalayas are under these conditions, and many parts of the world. Such indeed was the primitive nature of these continents before the great epoch in history of the invasions of the Semitic languages, and of the Indo-European, which ate up and swallowed the mass and variety of the indigenous languages and dialects. Hence the necessity of these investigations of Dr. Leitner for ascertaining the real nature of the Himalayan linguistics, and their relation to the origins of Aryan. If what he has done for the dead languages particularly touches this subject, no less pertinent are observations on the Turanian languages of the mountain mass, made known to us by the assiduous work of Brian H. Hodgson and others. Schoolmen have facile methods of determining the origins of the Aryans and their languages, and some of the Sanskritists have favoured us with an imaginary

aboriginal Sanskrit. Their doctrines do not supply us with an explanation of the rude and outlying languages of Kaffiristan, Dardistan, Afghanistan, Armenia, Albania, &c. The present state of affairs has led to a revolt against the domination of the Sanskritists in Germany by the new school of philology, under Professor Carl Abel and others, and an attempt by seceders from the sect of Sanskritists to change the *habitat* of the primitive Aryans from the Himalayas and Central Asia to low lands on the Baltic, suitable for the beech and birch. The conditions of the ethnographic and the linguistic problems are very complicated, and they require for their solution the labour of many men like Professor Leitner. In the Himalayas, as stated in a paper on the "Himalayan Origin of the Magyars," before this Institute, I attempted to establish relations of the Magyars, and of tribes, who co-operated with the Germanic and Magyar invaders of Western Europe, historical incidents, which are not exceptional in ethnographical annals, but not sufficiently studied.

Dr. LEITNER, in reply to observations made, said he had at first thought the Hunza language was Turanian, though that term was very vague, and was made to include all languages they knew nothing about, but he now, on further analysis of it, thought it might be taken to be the language out of which the earliest Sanskrit may have diverged. There was, however, a great difficulty in finding out the meanings of words, as "ak" would mean my name, "guk" thy name, and "ik" his name, while the consonant without the vowel had no meaning at all, so that the pronoun was mixed up with the substantive in such a manner that the substantive, relating to a person, had no separate existence, and this was also the case with the prepositions. "His finger" and "my finger" would be different words, and to follow up the language required a process of dissociation which was very difficult; but what did it lead to? They had reached a language in which a number of simple sounds stood for a number of relationships—the female relationship in various gradations and other personal relationships being represented by simple sounds. It was very difficult to say whether this was a Turanian language, but he thought it would turn out to be the language from which the Aryan languages had differentiated.

On Some BORNEO TRAPS.

By SYDNEY B. J. SKERTCHLY, F.G.S., M.A.I., &c.

[WITH PLATES IV TO X.]

[Read February 25th, 1890.]

THE following descriptions were written and the accompanying sketches made in the jungle of North Borneo. The traps were made for me by my own Dyaks, some for the purpose of illustration, some for the purpose of filling our scant larder.

The words, whether Dyak or Malay, are spelt phonetically, and the meaning given whenever it is known to me.

I. The *Jerat*. (Plates IV and V.)

The *Jerat*, Figs. 1 and 2, is a spring and noose trap of universal use amongst Dyaks and Malays in the forest. The word *jerat* with slight modifications is known far and wide through the archipelago, thus:—

The Malay and Dyak is *jerat*.

„ Sunda „ *jiret*.

„ Batavian „ *jirat*.

„ Tagala „ *dalat*.

The Dyaks also call this trap *penjuk*.

The word *jerat* means literally a running noose, and the full name of the trap would be *jerat burung* = bird noose, or *perangkap jerat burung* = trap-noose-bird.

The *jerat* consists of the following parts:—

- Fig. 2. a. The *Tidat* or trigger.
b. The *Bunkang*, or hoop.
c. The *Peningkas*, or catch.
d. The *Ambar*, or noose-cord.

- Fig. 1. e. The *Pantar*, or platform.
f, f. The *Liar*, or guard-sticks.
g. The *Baur*, or spring.
h. The *Sabar* or *Pagar*, or fence.

The *Bunkang* or hoop (Malay, Jav., Sund., *benkang*, curved) is of pliable wood, about the thickness of a lead pencil, and the size of a croquet hoop. It is firmly fixed in the ground.

The *Tidat*, or trigger, is a small stick about three inches long. Its upper end is tied to the cord or *ambar* about two feet from the noose-end.

The *Peningkas*, or catch, is simply a stick rather longer than the width of the *bunkang*, or hoop.

The *Ambar*, or noose-cord, is of twisted bark, or, where obtainable, of stout string, the noose being a variety of running bowline. This is the real *jerat*. The word *ambar* may, perhaps, be allied to *ambur*, *hambur*, spread, but this is doubtful, as *ambur* means rather to spread about as in sowing rice, than to spread wide open.

The *Pantar*, or platform (? Malay *pantat*, a base or bottom), consists of four or five straight sticks about nine inches long.

The *Liar* are only sticks placed on each side of the *bunkang*, or hoop, to protect it.

The *Baur*, or spring, is a flexible stick which acts exactly like the stick in a common mole-trap.

The *Pagar*, or fence, is rapidly made by cutting branches, sticking them in the ground at an angle, and bending them so as to roughly catch. It is only made about eighteen inches high.

Jerats were always used by me in preference to other traps for catching argus and other pheasants and jungle fowl.

A place is sought showing the beaten tracks of the birds, and a long *pagar* is erected, right across a valley for instance. Openings for *jerats* are left every twenty yards or so, and *jerats* are also placed across every bird track.

The *jerat* being made it is set as follows:—

The *baur*, or spring, is bent down, and the *tidat*, or trigger, passed over the *bunkang*, or hoop, the head of the trigger catching the back of the hoop. At the same time the *peningkas*, or catch, is slipped under the *tidat* and the *baur* released. The trigger is now set. The *liar* are now placed, one end on the ground, the other on the *peningkas*, and on the platform so formed the *ambar* or noose is spread, and then concealed by a few leaves.

The *pagar* is so slight that a bird could easily get through it, if they don't. When foraging, the birds are not particular here they go so long as the way is easy and the food plentiful. Hence the slightest obstacle will turn them. They saunter along the *pagar*, come to an opening and start through. The moment they step on the platform it falls, releases the trigger, catches the *baur*, and the victim hangs suspended by the

is my favourite trap. Six can be set in an hour at and it is very effective. I have caught in us, fire-ba

and Bulwer pheasants, jungle fowl, porcupine, wild cat, civet cats, &c., in them. Once we got a monkey, but a friend released him. Many times we got planduk, or mouse-deer, into *jerats* but they always got away.

II. The *Bubuung*, or *Krinkap*. (Plates V, VI.)

This is a fall trap for birds. The *bubuung* may be allied to *bubu*, a fish trap something like an eel creel, and does not seem to have any connection with *buang*, to throw out, a word which has many prefixes, but not *bu*.

The word *krinkap* I suspect to be a Dyak modification of the Malay *perangkap*, a common word for a trap, signifying literally that which catches.

The *bubuung* is a clumsy contrivance used for catching jungle-fowl and pheasants. It is neither so easily made nor so effective as a *jerat*, and as it nearly always kills the victim, is not in use by the Moslem Malays. The only ingenuity about it is the trigger.

The parts of a *bubuung* are as follows:—

Fig. 3. a. The *Kalung*, or drop.

b. The *Tiang*, or posts.

c. The *Baur*, or spring.

d. The *Tali*, or cord.

e. The *Pagar*, or fence.

Fig. 4. f. The *Pungayet*, or catch.

g. The *Tuil*.

h. The *Peningkas*, or trigger.

i. The *Runut*.

A fence or *pagar* about eighteen inches high is erected, at one end of which two stout sticks, *tiang*, supporting a cross-stick in the forks, are placed. At the other end of the *pagar* a small log of wood blocks up the opening. A roof, or *lantei*, rests loosely upon the end log and also upon the *kalung*, or drop, also a block of wood.

The heavy *kalung* with the roof resting on it is hung by bark cords to the *baur*, or spring-stick, at the farther end of which a string, *tali*, connects it with a trigger.

The trigger is placed inside the *pagar* on the right hand. It consists of a stick, *pungayet*, with a tine, and is firmly fixed in the ground. The end of the *tali* is attached to a straight stick, *tuil*, which catches under the tine and rests upon the double pointed *peningkas*, or trigger. The *tali* thus pulls up the *tuil* and presses it upwards against the tine and downwards on to the top of the trigger.

To the upper part of the trigger a fine string is attached, and passes across the trap to the opposite side where it is fastened to the trigger. This cord or *runut* is about five inches from the ground.

A bird entering the trap presses against the *runut*, the trigger gives way, releasing the *tuil*, and the *kalung* falls with the *lantei* on top of it.

The words *tiang*, *tali*, *lantei*, and *pagar*, are common Malay words signifying respectively post, cord, floor, and fence, and are not technical terms.

III. The *Kelung*. (Plate VII.)

The *kelung* now to be described is a deer trap consisting essentially of an oblong enclosure of rough poles, roofed, and having a portcullis-like door.

The word *kelung* is in universal use in the Malay states for the extensive fish-stakes which form such a feature along our shores, and I was somewhat surprised to find the name in use both by Dyaks and Malays for a deer trap. I hope to write a separate paper on fish traps, and will only here remark that the fish *kelung* is a labyrinth of split-bamboo mats leading into a central enclosure.

The deer *kelung* consists of the following parts:—

Fig. 5. The enclosure or *Pagar*, with its *tiang*, &c., as in the *bubuang*, but of course much larger.

a. The *Pintu*, or door.

b. The *Baur*, or lever.

c. The *Tali*, or cord.

Fig. 6. d. The *Tuil*.

e. The *Sekang*.

f. The *Peningkas*.

g. A peg with no special name.

h, h. The *Runut*, or lines.

The height of the *pagar* is about 6 feet (1 *depa*), and the length twice as much. The trigger is placed outside the *pagar* near the end furthest from the door.

It will be noticed that what is here called the *sekang* is the *tuil* of the *bubuang*, and the *tuil* of the *kelung* is the *pungayet* of the *bubuang*. I could get no explanation of this though I made special inquiries.

The *sekang* catches in a notch in the *tuil* at one end, and in a similar notch in the *peningkas* at the other. The *peningkas* also engages with the peg by a notch.

Two lines, *runut*, lead from the *peningkas* to the far side of

the enclosure to which they are fixed. These *runut* are made of a fine black liana, and if string be used it is always dyed black.

In the pagar behind the *runut* a quantity of pandan (*Pandanus*) leaves and a little salt are placed as bait. The deer enter the pagar, press the *runut*, displace the peningkas and the door falls.¹

IV. The *Peti*. (Plate VI, VIII.)

We now come to two very interesting methods of taking larger game such as pigs and deer.

The *e* is very short and the word is in sound much like the French *petit*. It may be allied to the Malay *petik*, to "touch" a stringed instrument.

The *peti* consists essentially of a spring armed with a fixed spear, and as will be shown, may help us to understand how the bow might have been produced.

The parts of a *peti* are as follows:—

- Figs. 7 to 9. *a, a. Pangat*, or posts.
b. Mata siah, or spear.
c. Unkrung, or ring.
d. Tuil, or trigger.
e. Has no special Dyak name.
f. Mutan, or band.
g. Runut, or cord.
h. Klandu, or toggle.

The size of the *peti* depends upon the game sought.

For pigs the *pangats* are about 1½ depas (9 feet) and the *mata siah* 1½ jenkals (11 inches). The *mata siah* is generally made of bamboo, and the binding cords and *runut* of bark cord.

Two stout posts, *pangat, a*, are firmly fixed in the ground, and to the top of one of them a tough elastic stick is bound by one end and acts as a spring. Near the end of this the *mata siah, b*, is attached. The *unkrung, c*, is a ring of plaited split rotan, about 2½ inches in diameter and half an inch wide. This is quite loose. The *tuil, d*, or trigger, is a thin stick 4 inches long, tied to the free end of the *mutan, f*, or band, which is fastened to a *pangat*. A longer stick, tough and elastic, completes this part of the mechanism.

To set the *peti* the *pangat a* is pulled back towards *pangat a*²; the *mutan, f*, is then passed round *pangat a*² below the *mata siah, b*, the end of the *tuil, d*, pressing against the opposite side of *pangat a*² as shown in the plan. The stick, *e*, is passed

¹ Deer are sometimes caught with a large Jerat, having a hook in place of a noose. I have not yet seen this in use.

beneath the *tuil*, *d*, touching it¹ and its other end sprung back to the opposite side of *pangat* *a*². Over the ends of *d* and *e*, the *unkrung*, *c*, is placed to prevent *d* and *e* flying apart; *d* and *e* by their outward pressure holding *pangat* *a*² in position.

To *pangat* *a*¹, at the height of the *unkrung*, is tied the *runut*, *g*. This passes through the *unkrung* and terminates at the *kalanduk*, *h*, a thin stick or toggle somewhat longer than the diameter of the *unkrung*. The *runut* is nearly horizontal.

An animal passing between *pangat* *a*¹ and the *mata siah* pushes the *runut* outwards, draws up the *kalanduk* which pulls off the *unkrung* and releases the *mata siah*, which flies to *pangat* *a*¹ with terrible force, often stabbing the victim to the heart.

The *peti* is a fearful machine by which many Dyaks have lost their lives. It has been effectively used to kill the rhinoceros. My men were well acquainted with its use, and I had to prohibit it for fear of accident. It is forbidden in Sarawak.

V. The *Peti Lanchar*. (Plates IX, X.)

The *peti lanchar* is even more interesting than the *peti*, combining in itself some of the principles of the bow and catapult.

It is not known to every Dyak tribe, and most of my men, Kalakas, were ignorant of it. It was, however, speedily adopted by them till I put a stop to it. In Sarawak it is not allowed to be used.

My mandore, Sali, a Sarawak Malay, made the first for me and the names of the parts are those he gave me. None of the Dyaks knew any words to represent the parts.

Figs. 10, 11. *a, a, a*. *Tiang*, or posts.

b. *Jimbang* or *Jimbattan*, or bridge.

c. *Galang* or *Kalung*, crotched sticks.

d. *Juran*, or spring.

e. *Punguti*, or trigger.

f. *Chinchin*, or ring.

g. *Sasawat*, or string.

h. *Mata peti*, or arrow.

i, i. *Tukul bubu*, or pegs.

The *peti lanchar* consists of three *tiangs*, *a*, from 18 inches to 2 feet high, cleft at the ends to receive the *jimbang*, *b*, and *kalung*, *c*. These five parts form the rigid frame.

A long elastic pole, the *juran*, *d*, is fixed at one end in it

¹ It is not necessary, though preferable, for the stick to touch the *tuil*, figure is purposely drawn with its parts free, to show its arrangement.

ground and further secured by two pegs or *tukul bubu*, *i* (trap pegs), one on each side. These hold the *jurun* rigid while it is bent back in setting.

On the *jumbang*, *b*, the *chinchin*, or ring, *f*, of rotan, travels, to which is attached the *sasawat*, *g*, a cord of thin black creeper. The *pungati*, *e*, is a piece of pointed stick attached to the *tiang*, *a*¹, by a short cord. The arrow, or *mata peti*, is a stick or bamboo pointed at one end and notched or forked (*gingin batar*) at the other.

To set (*passang*) the *peti* the *jurun*, *d*, is bent backwards against *tiang a*¹; the string of the *pungati*, *e*, is then passed over it and the butt end of the *pungati* pressed against the *jurun*, the point being inserted in the *chinchin*, or ring, *f*.

The *sasawat*, *g*, is led across a deer path, the trap being hidden in the jungle. No pig or deer would pass a white *sasawat*, hence it is always black.

The victim pressing against the *sasawat*, pulls the *chinchin*, or ring, from the *pungati*, the *jurun* is released and the *mata peti* shot forward. The *mata peti* rests against the *jurun* and on the *galung*.

It is evident that such a trap fires its arrow in a very uncertain direction. Hence, where bamboo can be obtained, the *mata peti* is inserted in a bamboo on each side of which a groove is cut. The *jurun* presses against the notch as before, and the bamboo, acting as a barrel, makes the arrow fly straight.

VI. The *Peti* and the Bow.

It is singular that the Dyaks having invented the *peti* and the *sumpitan* never designed the bow, which is also unknown to the Malays of Borneo. Yet the *peti* contains all the elements necessary for making a bow.

The common *peti* is a bow with an arrow fixed to it, and the string attached to one end by a temporary catch. If the arrow worked loose it would shoot away when the trap was sprung.

In the *peti lanchar* a step in advance can be seen. The arrow is moveable; but the string is still detached from the bow.

The bamboo barrel is most likely a suggestion from the *sumpitan*.

VII. Etymology.

A few words may be said respecting the etymology of the terms used. Not speaking the Dyak language, my information was derived through Malay, and my instructors failed to give

me the meaning of many of the words. "What does *lanchar* mean?" I would ask. "Why this is the *lanchar*," would be the reply. As many of the Malay words are in common use it may be most of the Dyak words also are not technical terms. In the following notes D. stands for Dyak, M. for Malay:—

Jérat, pr. *Jer'-at*, D. and M.

Tidat, pr. *Tē-dat*, a trigger, D. and M., appears to be synonymous with *pungati*.

Bunkong, pr. *Bunk'-ong*, a hoop, D. and M.

Peningkas, pr. *Pening'-kas*, D. and M. is applied to a stick which falls to the ground from a very small distance, as distinguished from *kalung*, which falls from a height.

Liar, pr. *Lē-ar*, D. and M., synonymous with Malay *sabar* and *sawar*. The sticks or broken branches used to mark the route when in the forest are called by their names, which are not given by Swettenham, Maxwell, or Favre.

Pantar, D. and M., in common use in N. Borneo.

Baur, pr. *Bough-rr*, D. and M., an elastic stick or spring.

Kalung, D. and M., see *peningkas*.

Sé kang, pr. *S'kang*, D.

Lanchar, D.

Pungati, pr. *Pung'-ati*, see *Tidat*.

Sasarwat, pr. *Sasar'-wat*, D. and M., a thin cord, as distinct from *talé*, a cord which may be string or a cable. Synonymous with *runut*.

Runut, D. and M., see above.

Tukul Bubu, D. and M., *Tukul* = pig *bubu*; = trap.

Mata Siah, D. and M. *Mata* here means sharp. It is quite distinct from *mata*, eye. Malays here say *mata pisan*, to sharpen a knife. *Siah* is Dyak and its meaning unknown to me.

I must leave this subject to competent philologists, and here only record the little I know, because the words do not occur in ordinary dictionaries.

All the Borneo natives use pit-falls with sloping sides, like native graves, but there is nothing of particular interest in them. This paper does not pretend to be exhaustive, but merely records accurately the traps I have seen.

Explanation of Plates IV to X.

A series of figures of Borneo Traps, sketched by Mr. Skertchly, to illustrate the foregoing paper.

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|----------------|---|
| Plate IV, fig. | 1.—The Jerat, or spring and noose trap. |
| " V, " | 2.—The trigger of the Jerat, set. |
| " " " | 3.—The Bubuang, or Krinkap. |
| " VI, " | 4.—The trigger of the Bubuang, set. |
| " " " | 7.—The Peti, a trap for large game. |
| " VII, " | 5 and 6.—The Kelung, or deer-trap. |
| " VIII, " | 8.—The trigger of the Peti, set. |
| " " " | 9.—Plan of the Peti trigger, set. |
| " IX, " | 10.—The Peti lanchar. |
| " X, " | 11.—The trigger of the Peti lanchar, set. |
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ANTHROPOLOGICAL MISCELLANEA.

PRECOLUMBIAN METALLURGY IN VENEZUELA, S.A.

Mr. HYDE CLARKE communicates the translation of a paper by Señor V. Marrano, on a subject of some interest—namely, the Composition of Copper Objects belonging to the epoch before the discovery of America by Columbus. It also contains a correction of Von Humboldt. Mr. Marciano says:—

The knowledge of the composition of ancient metallic objects, of which the origin and relative date are indisputable, is of great importance to the history of the progress of humanity.

M. Berthelot has already established in an obvious manner by the chemical analysis of a metal object dating from more than 4,000 years before our era, that the "age of bronze" was preceded by the "age of copper." (See the "*Moniteur Industriel*," June 6th, 1889.)

Once the antiquity of the metallurgy of copper established for the old world, it is interesting to make investigations in this direction for the new continent. Already Vauquelin, at the beginning of the century, had analysed a metal chisel coming from the Incas of Peru, and recently, in 1883, M. Damour had determined the composition of another similar instrument brought from Quito by Boussingault; the two objects of almost identical composition were formed of a mixture of copper and tin. (Boussingault in "*Comptes Rendus*," t. xcvi, p. 545.)

The anthropological explorations of Venezuela with which I was commissioned by the Government of this country in 1887, brought to light amongst the Precolumbians of the littoral, a civilization which they did not expect to find amongst people considered, according to the interested accounts of Spanish historians, as barbarous tribes, no more advanced than those who wander in the savannahs of Orinoco (Dr. G. Marcang "*Ethnographie Précolumbienne du Venezuela, Vallées d'Aragu et de Caracas*"). But the numerous excavations I worked did not reveal the least object in metal amongst the great quantity of every kind they enabled me to collect.

In spite of the explicit testimony of the historians of the conquest of Venezuela, which signifies the existence of metals among the country, that of Him them, found

assertion on the geognostic study he had made in traversing the country where he did not find any signs even of a probable auriferous stratum. The illustrious traveller explains the existence of these objects in gold amongst the Indians in their commerce from place to place with those of Cordillera, communications, however, which are far from being demonstrated. I chanced to discover near San Juan de los Morros a gold mine worked by the Precolombians, as is attested by an excavation twenty metres in diameter by at least as many in depth, made in the middle of the ridge line of the hill containing the stratum. The ore forming the almost vertical vein is a schistose rock, soft, completely disintegrated, containing gold and silver respectively in the proportion of 30 gr. and 1 kg. per ton. The ore yields at the simple washing and beating one quarter of the gold contained.

A few days ago near the village of Tequia, situated at a distance of twenty miles from Caracas, the pickaxe of an excavator uncovered several sarcophagi in earthenware containing bones, ornaments, of various substances, and a certain number of metal objects which, unfortunately, have been distributed amongst a number of persons. I was able to obtain three of these objects from which I took some filings for the purpose of analysis, the results of which form the object of this note.

The first is a circular medal bearing on one of its sides a design in chased work representing a scorpion or some such thing. Nos. II and III are pendelognes, obtained by fusion, and the execution of which is fairly well done. The analysis gave—

	I.	II.	III.
Weight of objects	—	—	—
Gold	13.3	15.170g.	6.196g.
Silver	73.3	23.7	7.6
Copper	13.4	5.8	traces.
Iron	—	47.6	38.4
	—	22.9	54.0
	100.0	100.0	100.0

One can say that No. I was made by hammering with native gold very rich in silver, and containing copper as is sometimes the case with the products extracted by myself from the gold mine as investigated. Nos. II and III are, without doubt, the result of an alloy. Within gunshot from the place where the sarcophagi were disinterred there is a vein of copper which crops out on the side of the hill, and is composed of carbonate of copper closely mixed with oxide of iron. It contains neither gold nor silver. Per contra, history mentions a gold mine worked by Indians before the conquest, situated near Tequia, but in an opposite direction to that of a copper mine. The objects analysed seem to me interesting because they show the existence in Venezuela of a Precolombian metallurgy, which, far from confining itself to the extraction of native gold, made alloys of the precious metal with that obtained by reducing the ferriferous copper ore.

RECENT ANTHROPOLOGICAL WORKS.

Dr. A. B. MEYER, the Director of the Royal Zoological and Anthropological Museum in Dresden, has presented to the Library of the Institute a copy of his *Album von Celebes-Typen* (Dresden: Stengel and Markert). This contains thirty-seven plates, with about 250 subjects, accompanied by brief descriptive letter-press. The plates are reproduced from photographs, most of which were brought by Dr. Meyer from Celebes in 1870 and 1871.

Mr. H. LING ROTH has presented a copy of his new work, *The Aborigines of Tasmania* (Kegan Paul, Trench, Trübner & Co.). This volume contains 234 pages of text, with voluminous appendices, and is illustrated with numerous autotype plates from original drawings by Edith May Roth.

E. B. Tylor, who contributes a Preface, says, that "In the present work the recorded knowledge as to the extinct native race of Tasmania, has been brought together with, I think, an approach to absolute completeness." The following is an abridged analysis of the work:—Chapter I, Introduction; II, Form and Size of the Aborigines, Physiognomy, Hair, Colour, Odour, Motions, Pathology, Abnormalities, Physical Powers, Senses, Reproduction; III, Psychology, Government, Customs, Medicine; IV, War; V, Fire, Hunting and Fishing; VI, Nomadic Life, Habitations, Social and Marital Relations, Education, Initiatory Ceremonies, Deformations, Burials; VII, Method of wearing Hair, Painting and Tattooing, Nothing, Personal Ornaments; VIII, Astronomy, Arithmetic, Music, Drawing, Games and Amusements; IX, String, Basket-work, Stone Implements; X, Trade, Communications, Navigation, Mining, Topography, Natural Forms, Natural History; XI, Fossils, Population, Contact with Civilized Races; XII, Language; XIII, Osteology (by Dr. Garson); XIV, Origin.

ROBERT MÜNCHER has presented a copy of his new work on *The Lake Dwellings of Europe* (Cassell and Co., Lim.). This volume embodies the results of a journey through the whole of Central Europe with the view of collecting materials, by direct observation, for a course of Rhind Lectures in Archaeology in 1888. The work is divided into six sections, corresponding with the number of lectures. The first deals with the settlements in Lake Zurich, Western Switzerland, and France; the second with settlements in Eastern Switzerland; the third with the Danubian Valley, and Carniola; the fourth with Lake Dwellings in Italy; the fifth with the remains found at La Teuche, and to the lacustrine and marsh dwellings in North Germany; the sixth with the remains of the lake dwellings of Great Britain as they are now, and the civilization of the lake dwellings as they are now.

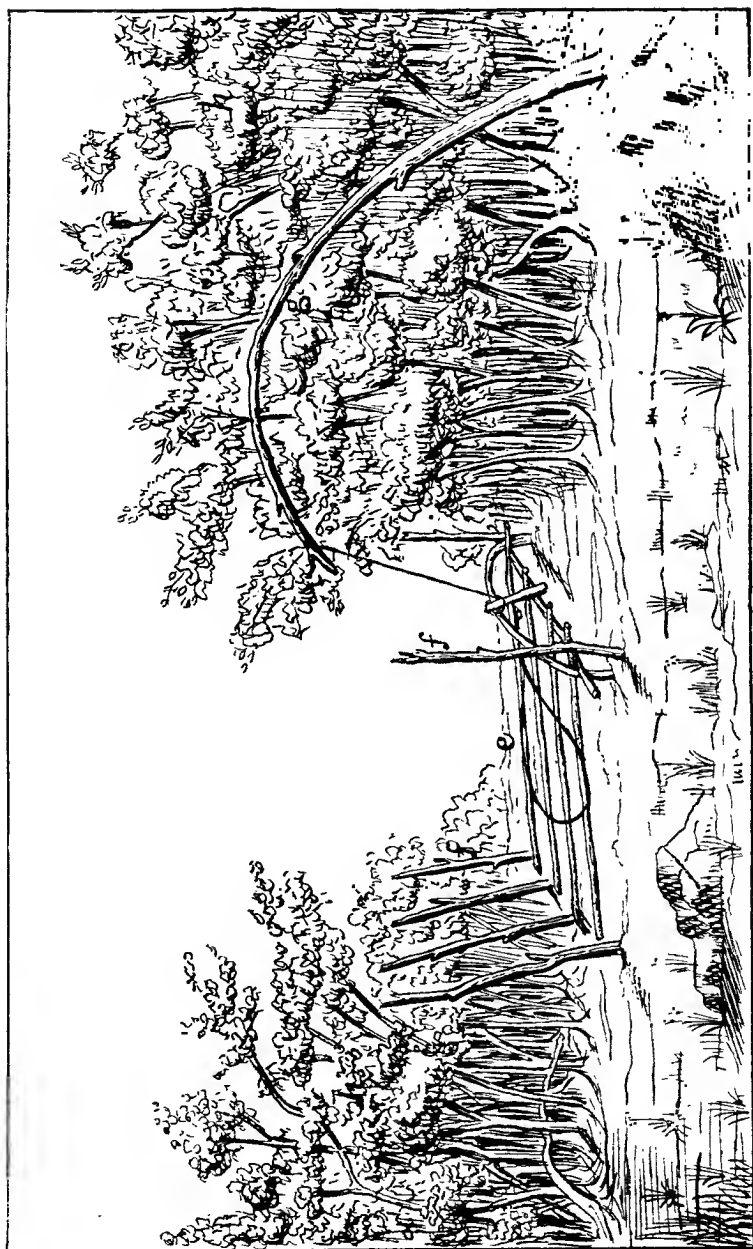
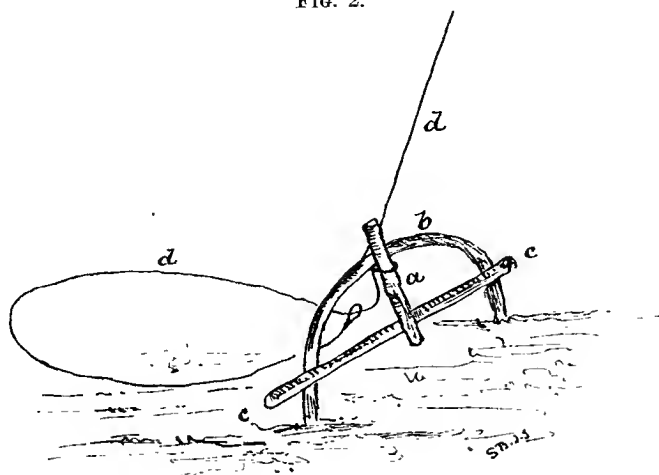


FIG. 1.—JERAT.

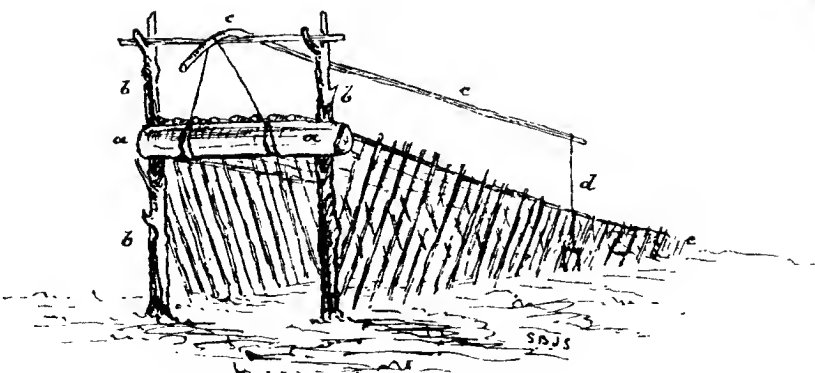


FIG. 2.



TRIGGER OF JEBAT, SET.

FIG. 3.



BUBUANG.

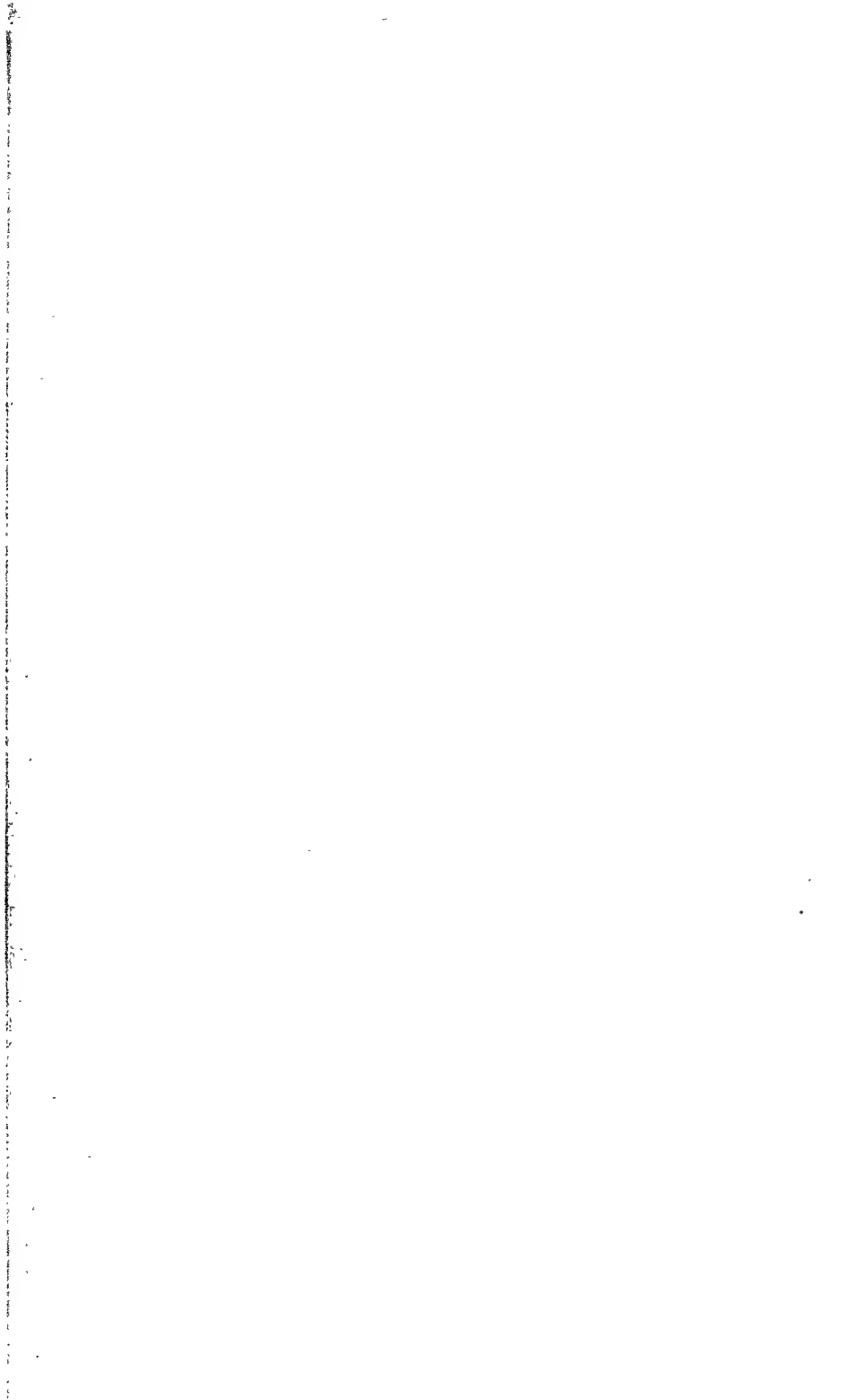
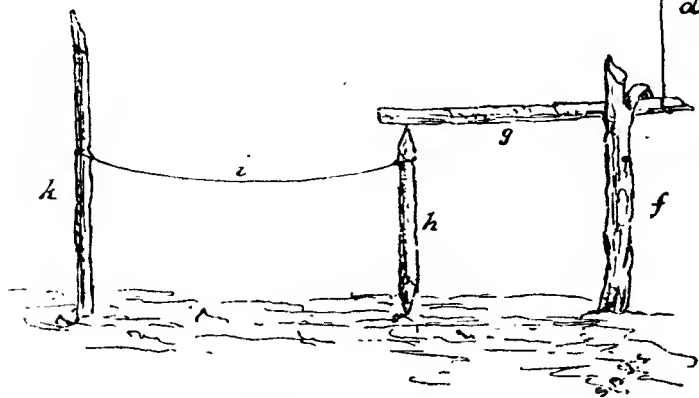
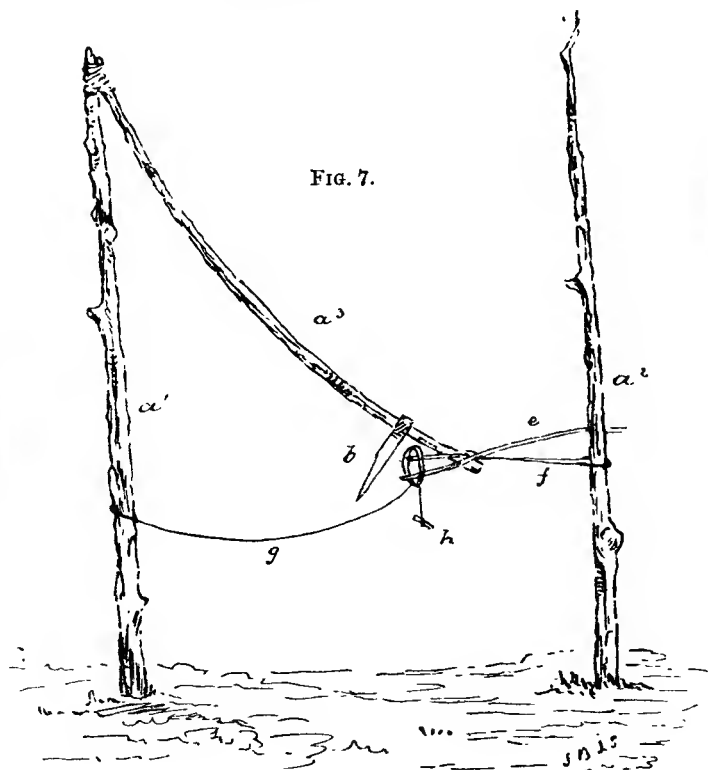


FIG. 4.

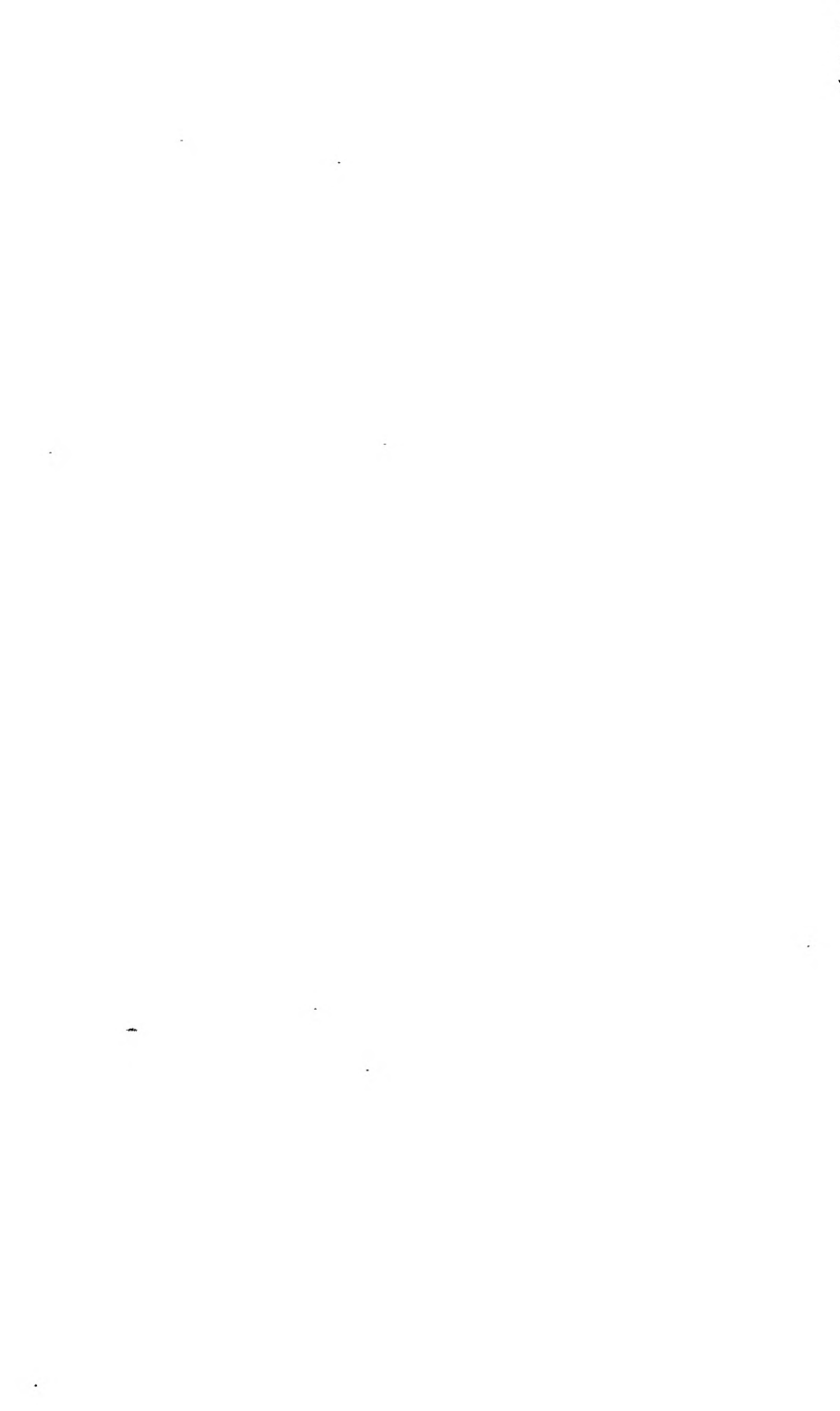


TRIGGER OF BUBUANG, SET.

FIG. 7.



PETI.



THE KELUNG.

FIG. 5.

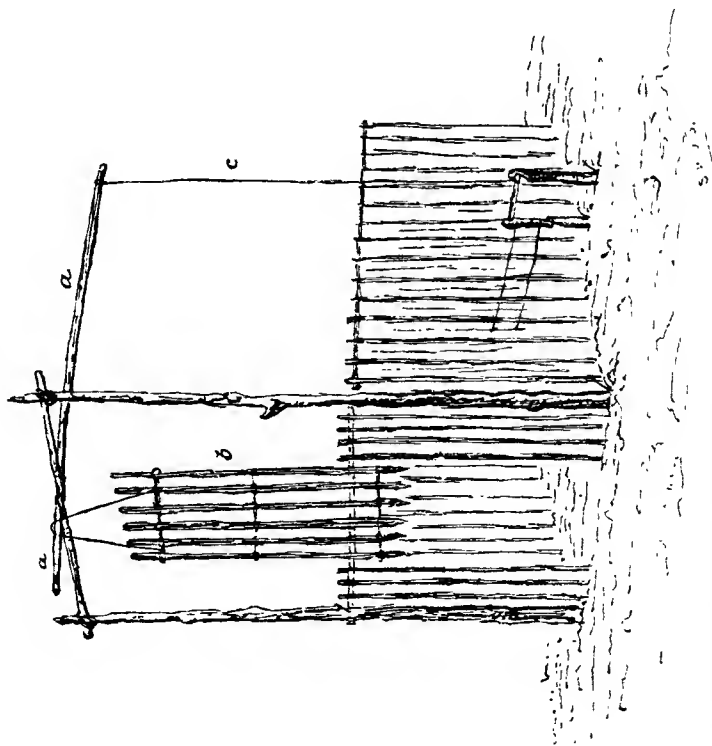
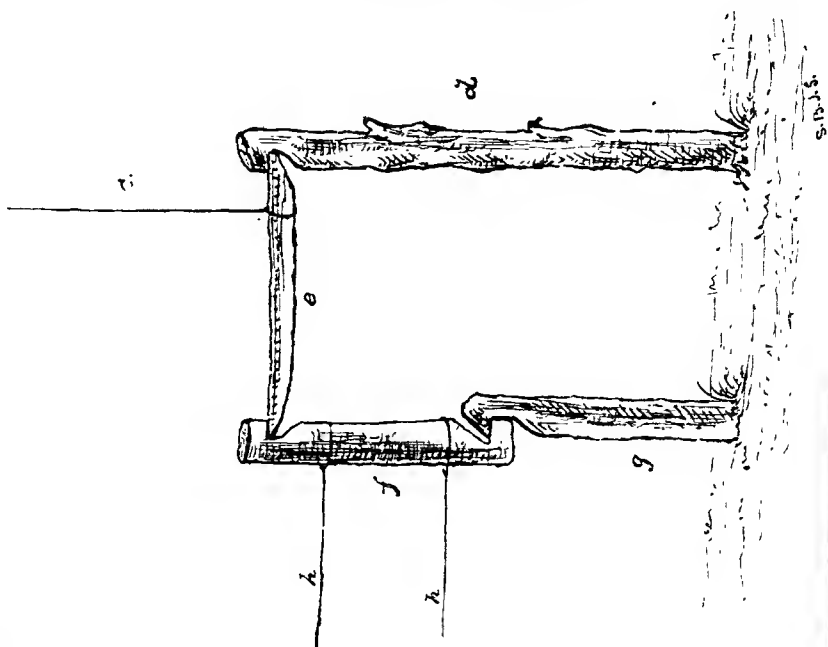
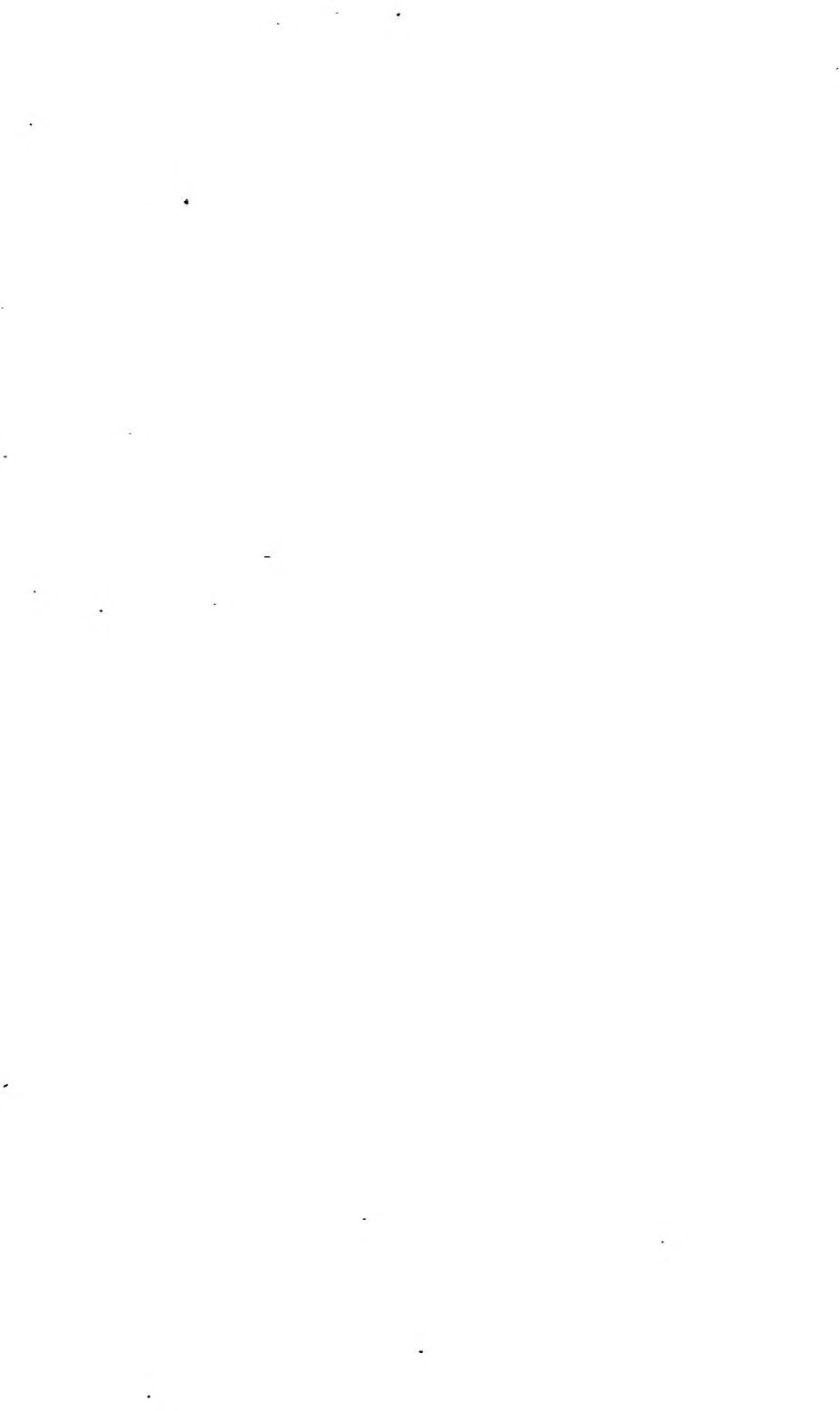


FIG. 6.





Q. 13, 14, 15

TRIGGER OF PETI, SET.

Fig. 9.

f

a

e

e

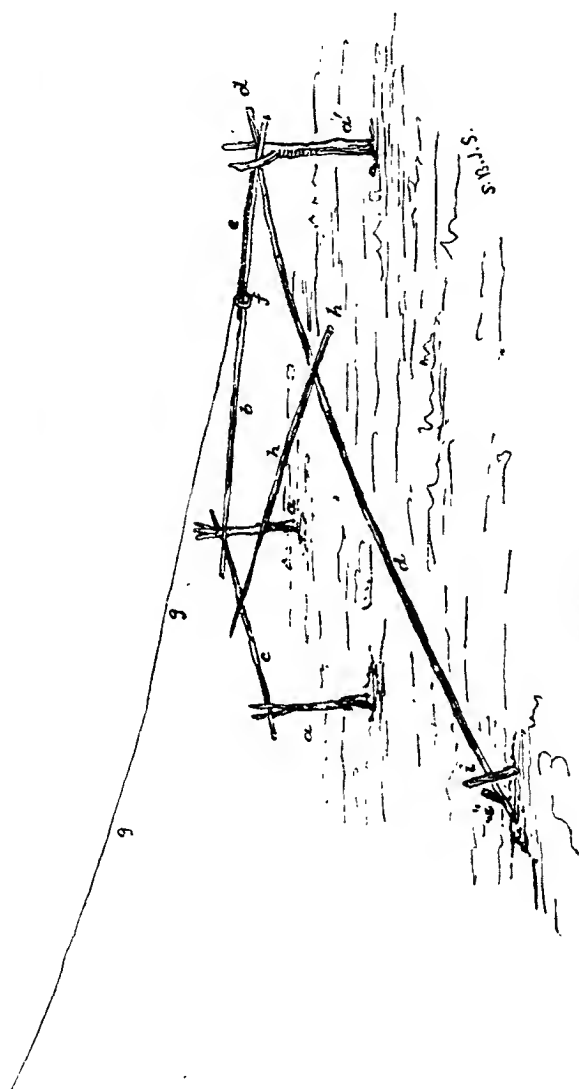
z

PLAN OF PETI TRIGGER, SET.

S.B. J.S.



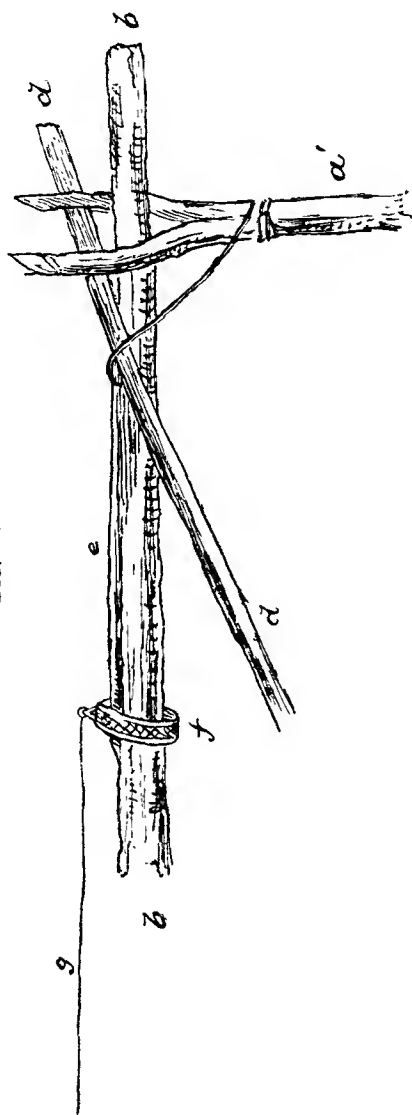
Fig. 10.



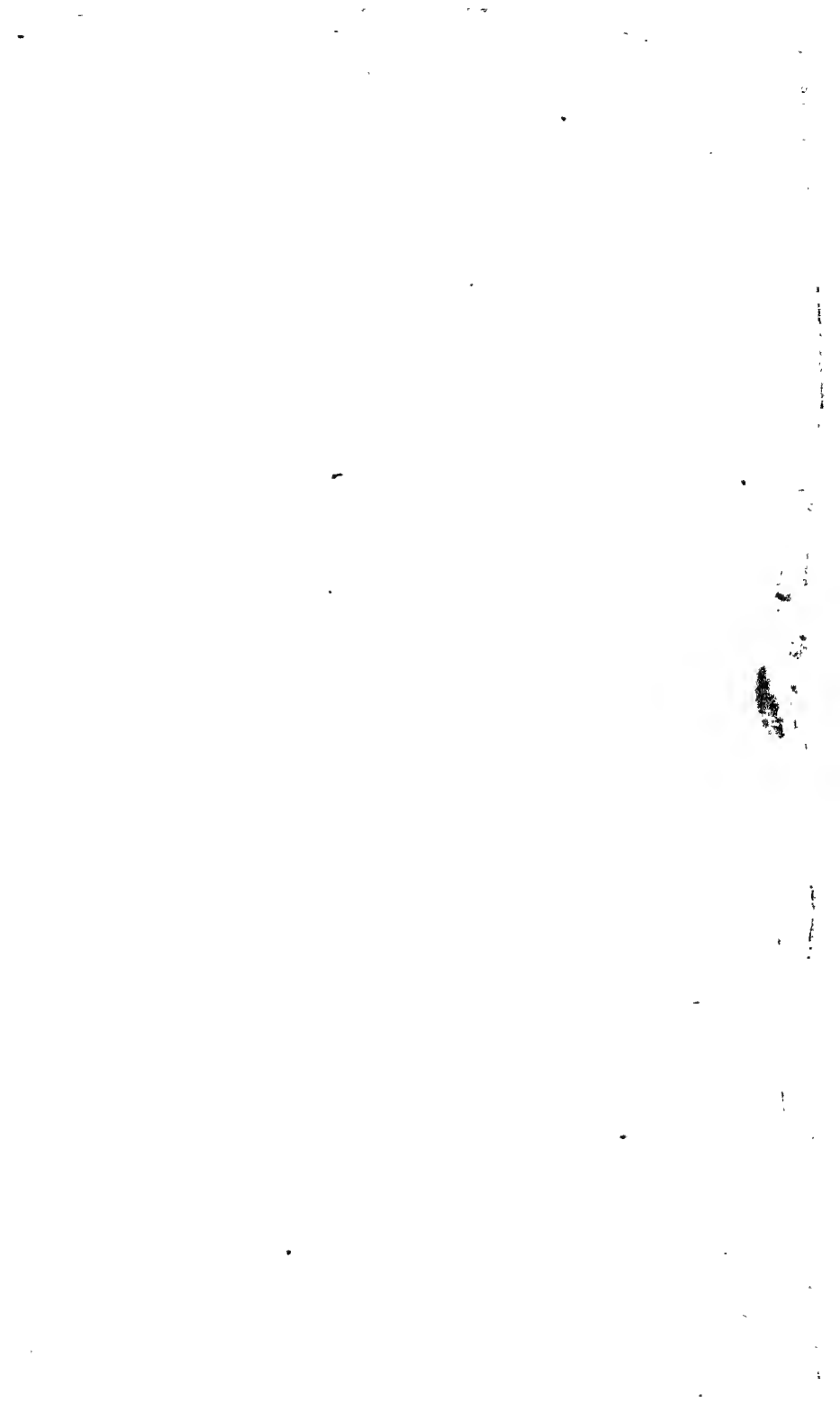
THE PETI LANCHAR.



FIG. 11.



TRIGGER OF PETI LANCHAR, SET.



THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

JUNE 10TH, 1890.

PROFESSOR W. H. FLOWER, C.B., LL.D., F.R.S., *Vice-President,*
in the Chair.

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the INDIA OFFICE.—*Epigraphia Indica and Record of the Archaeological Survey of India.* Edited by Jas. Burgess, LL.D., C.I.E.

From the AUTHOR.—*The Orbito-Maxillary Frontal Suture in Man and the Apes, with Notes on the Varieties of the Human Lacrymal Bone.* By Arthur Thomson, M.A., Oxon., M.B., Edin.

— *Additional Note on the Influence of Posture on the Form of the Articular Surfaces of the Tibia and Astragalus in the Different Races of Man and the Higher Apes.* By Arthur Thomson, M.A., M.B.

— *Primitive Games.* By Everard F. in Thurn, M.A.

— *Mining Laws and Customs in the Malay Peninsula.* By Martin Lister.

— *Les Origines de la Cartographie de l'Europe Septentrionale.* Par M. le Dr. E. T. Hamy.

- From the AUTHOR.—Funde aus der Steinzeit Aegyptens. Von W. Beiss.
- From the GOVERNMENT OF PERAK.—The Perak Government Gazette. Vol. iii. Nos. 10-14.
- From the BUREAU OF ETHNOLOGY, WASHINGTON.—Textile Fabrics of Ancient Peru. By William H. Holmes.
- Bibliography of the Iroquoian Languages. By James Constantine Pilling.
- Bibliography of the Muskogean Languages. By James Constantine Pilling.
- The Circular, Square, and Octagonal Earthworks of Ohio. By Cyrus Thomas.
- The Problem of the Ohio Mounds. By Cyrus Thomas.
- Fifth Annual Report. 1883-84.
- Sixth Annual Report. 1884-85.
- FROM THE DEVONSHIRE ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—Index to the twenty-first volume.
- FROM THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. vi. No. 6.
- FROM THE BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—Daag Register.
- FROM THE ACADEMY.—Transactions of the Wisconsin Academy of Sciences, Arts, and Letters. Vol. vii. 1883-87.
- Journal of the East India Association.
- Journal of the Royal United Service Club. No. 153 and Index to Subjects.
- Proceedings of the Royal Geographical Society.
- The Society of Biblical Archaeology. Vol.
- the Proceedings of the Royal Society of London. No. 1. Vol. i. Fifth Series.
- Asiatic Society of Bengal. Nos. 7-10.
- Asiatic Society of Bengal. Vol. lviii. Nos.

Journal of the Society of Arts. Nos. 1956-9.

PERUVIANS.—Folk-Lore. Vol. i. No. 2.

PERU.—The American Antiquarian. Vol. xii. No. 3. 1880.

PERU.—Nos. 1072-1075. I. 0.

PERU.—Nos. 373-381. II.

PERU.—The

PERU.—The

EXHIBITION of a FETISH, or ULA, from LAKE NYASSA.

By PROFESSOR W. H. FLOWER, C.B., LL.D., F.R.S.

PROFESSOR FLOWER exhibited, on behalf of the Rev. Leonard O. Warner, an instrument termed the *Ula*, from Likoma Island, Lake Nyassa. It is made of the skin of a small animal, stuffed with "medicine," and is used by witch-doctors for augury and for discovering the perpetrator of a crime. The doctor pulls it about, rubs it in his hands, talks "gibberish" to it, and then professes to receive from it an answer. The manipulation of the ula is expressed by the word *tembenuza*. The instrument is regarded with deep reverence, and it is extremely difficult to obtain an example. Mr. Warner believes that the one procured by him, and exhibited to the meeting, is the only one ever brought to England. The specimen has been presented by Mr. Warner to the Ethnological Department of the British Museum.

Professor Flower pointed out that the skin was that of an ichneumon, but belonged to a species not represented in the Natural History Museum. It is believed by Mr. Oldfield Thomas to be referable to *Herpestes sanguineus* of Rüppell.

The ANSAIREE of ASIA MINOR.

By THEODORE BENT, Esq., M.A.

MR. BENT gave a description of the Ansairree who live in and around Tarsus, and who practice amongst themselves a secret religion. He connected their worship with that of the Ali-Ullah-ih, of northern Persia, and brought several points to bear on the theory that the nomad tribes from the Mediterranean to the Caspian all practice this occult religion. All look upon a certain Barba Nasere as their founder, the God-head of Ali—the basis of the religion; and they admit a Trinity, the Ain, Min Sin, or Ali the Father, Mahomed the Son, and Salman El Farsi, the Holy Ghost, which, joined with the fact that they make use of wine in their secret feasts as a symbol of Ali, would point to a Christian origin for the sect. A full account of the Ansairree will appear in the "Cornhill Magazine" under the title of "A Secret Religion."

The Ansairie are divided into four sects, the Shemali, the Kalazians, and two others, the peculiar tenets of which Mr. Bent described. Their prayers are very beautiful and expressive, and there are many curious points analogous to freemasonry in connection with the initiation of a new member.

At Tarsus they are thrifty and well-to-do, owning most of the gardens which surround that town, and many of their customs are analogous to those practised by the Kizil Bashi, a tribe who live further north. Mr. Bent also found the same religious tenets in a modified form amongst the Afshar tribes, and considers the extent of those who belong to this denomination to be far wider than was hitherto supposed.

Mr. Bent based his account on three sources of information, firstly, a close examination of the Ali-Ullah-hi in Persia; secondly, a written account of a renegade named Suleiman; and thirdly, personal investigations this spring in Tarsus.

DISCUSSION.

Professor BURRILL JONES, alluding to Mr. Bent's remark on the choice of hill-tops for some religious observances as having probably an ancient origin, noted that the habit of passing under a table of the entombment in Greek with the similar old Welsh practice of a night in a cromlech, cist-van, or feston, initiation, or other religious char., as Mr. Bent explained that the habits of the Christians, as for instance they could give any idea how the occurrence of these festivals, as showing connection with Christianity, question concerning worship of Ali, replied that as the Ansairie at first worshippers, they had pro environments.

of the parallel custom of some
The custom was
in Temples (see

A CONTRIBUTION to a SCIENTIFIC PHRENOLOGY.

By BERNARD HOLLANDER, Esq., of Vienna.

In a Paper on "Brain Centres of Ideation," read before the Anthropological Institute in February, 1889, I gave a collection of facts relating to the subject of brain functions in their subjective and objective aspects, with a view to show the possibility of a "scientific" phrenology, and the necessity of re-examining the empirical observations made by Dr. Gall, bearing in mind the defects of his system, and the over-strained pretensions of his followers. In the present communication I present the result of further investigations, showing again a striking similarity between modern experimental researches on the functions of the brain, and the observations of early phrenologists, whose work has been long ago rejected on account of the insufficiency of their method.

Centre for the concentration of attention and visual ideation.—The majority of brain-physiologists agree that the "visual" brain-centre is located in the first occipital convolution (See Exner, "Localisationen der Functionen in der Grosshirnrinde des Menschen," p. 60.) True, Professor Ferrier was for a long time under the impression that the "angular gyrus" is the centre of sight; but it is now shown that lesion of the angular gyrus does not affect the sight, whereas destruction of—say the left—gyrus occipitalis prim. causes blindness on the right eye. Professor Ferrier's work is nevertheless of great significance in this investigation, for he is a philosopher as well as a scientist, and has not only mapped out the brain in motor-areas, but has considered the brain-hemispheres psychologically. Thus he maintains that destruction of the visual brain-centre causes not only loss of vision but also loss of visual ideation and memory, "not only makes the individual blind presentatively, but blind re-presentatively or ideally" ("Functions of the Brain," p. 429).

He continues (p. 463, § 18): "Ideas excited peripherically, arising spontaneously, or recalled voluntarily, tend to flow along the lines of association by contiguity or similarity. The current may flow on uninterruptedly as in a reverie or a dream, or it may be suddenly checked or diverted by an impression from without, which vividly engages our attention. Attention so excited is purely passive, and the concentration of consciousness is proportional to the intensity of the stimulus. But just as we can at will fix our gaze on some one object out of many appealing to our sense of vision, and see this clearly while all

others are indistinct or invisible, so we can fix our intellectual gaze, or concentrate our consciousness, on some one idea or class of ideas to the exclusion of all others in the field of intellect vision. This is a purely volitional act, and its exercise is accompanied by a distinct feeling of exertion, and ultimately fatigue, if continued.

"The physical expression of rapt attention is that of intent
 we, with the eyes accommodated for near or distant objects, and
 associated with such movements of the head as serve to bring
 the object on the punctum centrale of the retina." Thus indicat-
 ing that intellectual attention is essentially ideal vision.

“Apart from the passive or reflex concentration of consciousness conditioned by the intensity of the spontaneously revived or actual sensation, we cannot voluntarily concentrate attention on any idea which we cannot represent usually, either in its own characters, source or relations.”

According to this mode of reasoning "intellectual attention is mainly ideal vision," and the faculty of attention is intimately related to the centres of visual perception and action.

Whether Professor Ferrier be right or wrong, we must take
 remarkable coincidence that George Combe should
 occupy the same area, i.e. first occupies
 the same ground to the faculty in
 the mind, and then to the power to create and
 long time on one object. The individual is an
 When we ask our mind to concentrate on
 a subject we understand to be upon the object
 and it usually before the mind. An effective
 the faculties takes place only when the original
 things are of themselves powerful and permanent
 attention will be found consequently to be most
 and a least effort to produce it.

ature of the supposed faculty there can be no
 minds possess the power of dwelling intently
 to the exclusion of others having no relation to
 the comparatively large domain of the
 the physical
 for the mind

reasoning and the statements made by phrenologists must have some significance.

Centre for the revivification of ideas.—Mr. Herbert Spencer has written some able articles on Phrenology (Zoist, Vol. i and ii), in which he not only demonstrated his belief in Gall's system, but showed himself an acute observer. One of those articles entitled "A Theory concerning the Organ of Wonder," is of special interest to us.

Dr. Gall observed a connection between visions or hallucinations, and a particular brain-area, but he was not able to arrive at any definite conclusion as to the function of this part. His followers, however, as the result of their observations on living heads, maintained that a large development of this "un-named" area of Gall is accompanied by an active sentiment of wonder or marvellousness. Against this theory Mr. Herbert Spencer objected, and substituted a theory of his own, which, as I shall show, is very similar to that of Professor Ferrier regarding the function of the same area.

The origin of visions and hallucinations has always been a puzzle to both pathologists and students of mental science, and when Professor Ferrier's experiments on the brain-cortex became known, it was supposed that his "visual" and "auditory" centres would offer an explanation. The visual centre was originally located by Professor Ferrier in the "angular gyrus," but has since been referred by foreign investigators, and by Professor Schäfer in this country, to the occipital lobe, especially the first occipital convolution. However, at the time of the enquiry which I am about to quote, the visual centre was supposed to be in the angular gyrus.

W. J. Mickle ("Journal of Mental Science," Vol. xxvii and examined 32 cases of general paralysis (in soldiers), in so whether pathology confirmed Ferrier's localizations, try that visual hallucinations are the result of disturbed areas. If the theory be correct the diseased area must be angular gyrus, or as is now believed, the first occipital. Out of 15 cases of visual hallucination (17 only) not a single case showed affection of the occipital even with regard to the much closer angular gyrus—which is, as we know, no visual centre at all.—Dr. Mickle has come to the conclusion that "in cases of visual hallucination in general paralysis, the angular gyrus is not affected in the asked manner one would anticipate, on the theory that it is a sole cortical visual centre." On the other hand, I find that 3 cases Dr. Mickle mentions only confirm the view that hallucinations are concerned with a morbid change in the structure of the most posterior zone of the frontal lobe, a hat

the hallucinations vary in character and are augmented in relation to the spread to the surrounding convolutions.

Let us now see what Mr. Herbert Spencer has to say as to the origin of visions. In the paper quoted, he supposes the area, which Gall noted to be connected, with a liability to visions, to be the centre for the *revivification of ideas*, the organ of "Reviviscence," as he calls it, and supposes this faculty to be the chief agent of imagination. His own words are:—

"The reader will at once see that the liability to be deceived by spectral appearances, must, other things being the same, vary as the power of the proposed faculty. The more efficient the instrument for the revivification of impressions, the more nearly will the images produced approach in appearances the realities. Celebrated painters have possessed the power of calling up objects so distinctly before the mind's eye as to render the process of depicting them little more than copying from Nature. If then the faculty be capable of effecting so much under the influence of its ordinary stimulus, we may reasonably assume that its unnatural actions will be accompanied by a difficulty in distinguishing revived impressions from real

uses of mental illusions from a slightly in might be quoted. Similarly ma

ception which gives rise to the seen. During the gloom of night, appropriate feeling, every detail of the mind some pre-existing in to bear a faint resemblance, a on extreme fear, the mental mistaken for the thing seen.

such illusions in the ratio of their of Reviviscence."

ence creates mental imagery, love of affording scope for imagination. It Reviviscence is the parent of imagination, a revival and putting together of ed by the perceptive faculty, as

the reviving agent must in images. Poets, therefore, ed by their powers of in possess a large end

Hogg. In all of them the organ is large, in some very large. The names of other poets might doubtless have been added to the list had likenesses of them been attainable."

He continues:—"Further evidence is deducible from the fact that so many men of powerful memory, or brilliant imagination, have been subject to mental illusions. Tasso held conversation with a spirit gliding on a sunbeam. Malebranche heard the voice of God distinctly within him. Pascal often started from his chair at the appearance of a fiery gulf opening by his side. Luther conversed with demons. Descartes was followed by an invisible person calling upon him to pursue the search of truth. Swedenborg describes heaven and hell. Benvenuto Cellini was accustomed to behold a resplendent light hovering over his own shadow. Dante talked with spirits, and Cowper was haunted with spiritual sounds. Inasmuch as these cases favour the conclusion, that the power of reviving impressions, either as manifested in memory or imagination, frequently co-exists with the liability to spectral illusions, they give collateral support to the proposed theory, for they show that these several traits emanate from the same peculiarity of organisation."

Mr. Herbert Spencer's theory, then, amounts to this—given in his own words:—"That the organ entitled 'Wonder' by the phrenologists has for its ultimate function the revival of all intellectual impressions, that it is the chief agent of imagination, and that it affords a tangible explanation of mental illusions, either when due to disordered states of the brain, or to unusual excitement."

The situation of "Wonder," or, to use Mr. Herbert Spencer's term "Reviviscence," corresponds with Ferrier's area (12), "the citation of which causes the eyes to open widely, the pupils dilate, with movements of the eyeballs and head. *It gives appearance of attention, and the movements indicated are aid to the revivification of ideas.*"

Ferrier gives the following explanation:—"Just as inhibition or partial excitation, of any particular movement, back upon the sensory cohesions with which it is associated, the movements of the head and eyes react back on the eyes of vision and keep the ideal object in the field of clear consciousness, and through this recall its various sensory and motor associations. *It is not essential that the object revived in the mind should be so clearly revived in the visual field as the actual object itself.* There are great differences in this respect among different individuals,¹ and there is no relation between the vivid-

¹ See the valuable and interesting observations on this head by Mr. Francis Galton: "Inquiries into Human Faculty and its Development, 1869; Mental Imagery," p. 83, et seq.

of the mental imagery and the faculty of attention and act thought."

The expression produced by Professor Ferrier by means of the galvanic current is the expression we are accustomed to see in visionaries and superstitious people. Vimont says:—"When the emotion of wonder is much excited, the head is carried high, it turned to the side, the eyes are directed toward heaven, widely open, the eyebrows are elevated and the mouth is open. This expression is frequently seen in visionary and superstitious people. When we are impressed by an event, the hands are stretched out, the look is fixed, the eyes are open, and the eyes are turned upwards."

Darwin speaks to the same effect, and adds as an explanation: "As surprise is excited by something unexpected or unknown, we naturally desire when startled, to perceive the cause as quickly as possible, and consequently open our eyes fully, so that the field of vision may be increased, and the eyeballs moved easily in any direction." Darwin gives also numerous examples of the stretching of the arms, accompanying sometimes the expression of amazement; an effect which Professor Ferrier

describes under (5) i.e. extension forward and occasionally this action is apt to be described under (5) i.e. extension forward

and Professor Ferrier was able to give the temporal lobe as he was able to give that he talked to him as to his experience on this lobe. The action of this area is "contraction of the temporal lobe" and that we have a very centre just as we could not control excitation of the centre just described. The causes opening of the eyes, it is the destruction of the temporal lobe causes attributed by foreign experimental physiology by Professor Schafer in this country Dec. 22 1887.)

many of the effects produced in Professor Ferrier's experiments on this lobe with the neurological focus as he received with is to direct him

"Sudden retraction or pricking of the ear, causing the animal occasionally to make a sudden spring or bound forward." This is centre (14). In cats the excitation of the extremity of the corresponding convolutions—centre (9)—caused opening of the mouth, associated with vocalisation and other signs of emotional expression, such as spitting and lashing the tail as if in rage.

On p. 111 ("Expression of the Emotions"), Darwin refers the retraction of the ears to the care which animals take to prevent their ears being seized by their antagonists, and says: "Consequently through habit and association, whenever they feel slightly savage, or pretend in their play to be savage, their ears are drawn back. That this is the true explanation may be inferred from the relation which exists in very many animals between their manner of fighting and the retraction of their ears. All the Carnivora fight with their canine teeth, and all, as far as I have observed, draw their ears back when feeling savage." Darwin quotes numerous examples showing that animals when savage have their mouths open and the ears drawn backwards, especially the latter.

Gall located in the same region his "propensity to kill," which he afterwards modified to the "carnivorous instinct"; his followers chose the term "destructiveness," and "the locality of it was suggested by comparing the brains and skulls of carnivorous animals with herbivorous, and those of murderers with average human beings." Whatever may be said against his deduction, the facts which he observed nearly a century ago agree with Professor Meynert's (Vienna) observations—a comparison between the brains of carnivorous and herbivorous animals—and with those of Professor Benedict (Vienna)—a comparison between the brains of murderers and carnivorous animals.

Professor Bain says: "Mr. Robert Cox, in an elaborate examination of 'Destructiveness' (*Phren. Journal*, Edinburgh, Vol. ix, 62) regards the primitive feeling as the 'propensity to do sometimes with malice, at other times not. We have in fact, merely another name for the 'irascible' emotion, which some assert that metaphysical authors do not treat of any power resembling the destructive propensity. As an example from history, Nero might be cited, whose pleasure of malignity was amply gratified."

Herbert Spencer describes ("Principles of Psychology") the destructive passion as a general tension of the muscular system, gnashing of the teeth, protrusion of the claws, in dilated eyes and nostrils, in growls, and says these are the weaker forms of the actions that accompany the killing of prey.

Conclusion.—In a former communication for the Author

Inst., August, 1889), I have shown the connection existing between—

- (1.) The modern centre for movements of the elevators of the mouth, and the phrenological organ of "Hope," or "Cheerfulness."
- (2.) The modern centre for movements of the facial muscles and the phrenological organ of "Imitation," or "Mimicry."
- (3.) The modern "gustatory centre," and the phrenological organ of "Gustation," or "Alimentiveness."
- (4.) The modern centre of the so-called "patience muscle" (raising the shoulder) and the phrenological organ of "Veneration," or "Submission."
- (5.) The effects of excitation and destruction of the "angular gyrus," and the phrenological organ of "Cautiousness."

Having now added three more points for your consideration, perhaps you will grant me this much—

That the founders of what we are accustomed to consider as phrenology, though unable, in the present state of our knowledge, to demonstrate their conclusions by the aid of the most skilful and careful observers, have yet shown that their conclusions are well founded in the light of modern science.

1890.

S. A. Vice-President, in the Chair.

ng were read and signed.

NORMAN H. HARDY, Esq., of No. 8, Bloomington Road, W., was announced.

reports were announced, and the

- From the AUTHOR.—The Gentile System of the Navajo Indians.
By Washington Matthews, M.D., LL.D.
- Notes upon the Gentile Organization of the Apaches of Arizona. By John G. Bourke.
- Classification Naturelle des Sciences. Position et Programme de l'Anthropologie. By M. le Dr. Manouvrier.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovie. Mai, 1890.
- From the SOCIETY.—Proceedings of the Royal Society. Vol. xlvii. No. 289.
- Journal of the Ceylon Branch of the Royal Asiatic Society. Vol. x. No. 36. 1888.
- Journal of the Society of Arts. Nos. 1960–61.
- Bulletin de la Société Impériale des Naturalistes de Moscou. No. 3. 1890, Mémoires. No. 6.
- From the EDITOR.—Nature, Nos. 1076–1077.
- Science. Nos. 382–384.
- Revue Scientifique. Tom. xlv. Nos. 24, 25.
- Bullettino di Paleontologia Italiana. Tomo vi. Nos. 3, 4.

Mr. J. E. Price, F.S.A., exhibited two skulls recently exhumed in the City of London, and described a skeleton found near West Thurrock, in Essex.

The following Paper was read by the Author:—

The STUDY of ETHNOLOGY in INDIA.

By H. H. RISLEY, Esq., B.A., Bengal Civil Service.

ABOUT four years ago, in an article published in the *Asiatic Quarterly Review*, I ventured to complain of "the comparatively scanty use that has been made of the great storehouse of ethnographical data which British rule in India has thrown open to European enquirers." The complaint is one that cannot be too often repeated. In most works on Indian ethnology, evidence of the most unequal value, derived from the most various sources, is treated as if it were of uniform character. Brahmanical legends are placed on the same footing as facts ascertained by the best modern researches; and one writer after another is content to repeat isolated statements lightly made by some of the earlier observers without seeking to examine the source from which they were originally derived, or to test their probability by the application of the comparative method. Thus it happens that some pieces of popular hearsay picked up by Buchanan in the course of his Indian survey of arts of

officer in charge of a settlement is very fully occupied with the practical objects of making an equitable assessment of the Government revenue, and of adjusting the relations of landlords to their tenants on a peaceful and permanent footing. With the customs of the people he is concerned only in so far as these throw light upon their status in relation to the land, and unless the connection between the two sets of facts is tolerably obvious, it is no business of his to travel outside the record for the gratification of scientific curiosity. The usages, moreover, by which science sets most store are generally those which lie rather below the surface of Oriental life, and do not force themselves on the notice of European or native officials. In illustration of this difficulty, we may point to the phenomena of totemism, the wide prevalence of which in Bengal was only imperfectly realised by Colonel Dalton, while it entirely escaped the notice of earlier observers. Facts of this order can only be elicited by inquiries embracing a far wider area than is covered by any particular series of land revenue operations, and conducted on a system devised so as to give full play to the comparative method of research. They cannot be picked up *ex rapépyou* in the course of ordinary official business.

For these reasons the ethnographical data to be found in Indian official reports are, as a rule, neither full enough nor precise enough to appeal very strongly to European ethnologists. Such reports, moreover, are not readily accessible to students; their titles give a very slight clue to the nature of their contents; and any information regarding custom which they contain is generally buried under a mass of highly technical and uninteresting matter. Clearly it is not to be expected that writers on general ethnology should toil through this mountain of chaff in the hope of picking out the scattered grains of knowledge which it might contain. Even were the labour accomplished, it might fairly be doubted whether anyone lacking Indian sense would find himself much the wiser at the end. Probably he would be filled with the regret that he had wandered to no purpose in a wilderness of uncouth names. Indian official reports are addressed to a small circle of experts who have gradually and incessantly acquired the elementary knowledge of the people and the country which forms the key to the sealed volumes of this peculiar form of literature. This knowledge can only be acquired in India, and has, for the most part, never been reduced to writing at all. The result is that writers on ethnology, when compelled to treat of Indian subjects, are thrown back on mere literary accounts which give an ideal and misleading picture of caste and its social surroundings. They show a not things as they are, but things as they are to be.

in the view of a particular school or in the light of a particular tradition.

This defect is by no means peculiar to Indian literature, appears in a less prominent form in the works of European ethnologists, and has probably given rise to the reproach of neglecting critical methods which is commonly laid upon them. We are not so unreasonable as to urge that all ethnographical evidence should be gathered at first hand, and that no one should write about the customs of people with whom he has no personal acquaintance. But in studying some modern books on these subjects, it is difficult to get rid of the impression that the writers were a long way removed from the subjects they were dealing with, and had never quite got into touch with their facts. *Surgit amari aliquid*—we feel that something is wrong, and we are tempted to think that the savage man has hardly had justice done him. It is not for us to lay down a course of preliminary training for distinguished ethnologists, and to demand that Mr. Herbert Spencer should get himself enrolled, like Mr. Frank Cushing, in the sacred societies of the Zuni, or that Sir John Lubbock should follow the example of Mr. Lewis Morgan in joining himself to the Iroquois. The prospect of such an ordeal would perhaps thin the ranks of the

But in these matters a little knowledge is a very good thing, and some slight personal acquaintance with a single tribe of savage men could do much to serve the philosopher who is engaged in the process by which civilization has been evolved out of barbarism. Such experience would be sure to leave a vivid impression of the extreme crudeness of savage modes of thought, of the unworthiness of testimony, and of the rapid mutability of custom itself. It would lead to a profound distrust of the statements

in books of travel.

We may indeed claim for ethnographic research in India a comparative immunity from some causes of error which have retarded the development of ethnology, and retarded its recognition as a science. Most of the barbarous and semi-barbarous tribes which come under our notice in India are at the

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tribes within reach of the scientific observer, has not exposed them to that contact with colonists of European blood which has proved so destructive to the aborigines of Australia and America. Those races of India, which, for want of a better name, we may for the present call non-Aryan, show no tendency to disappear, and in some parts of the continent their numbers appear to be on the increase. Without, therefore, omitting to record the characteristics of tribes which are dying out, like the Lepchas, or losing their identity, like the Mech and Dhimal, by absorption into larger groups, the ethnographer is by no means confined to the study of moribund types. Nor is he greatly troubled by the difficulties connected with language, which have proved so serious an obstacle to inquirers in other parts of the world. Interpreters are readily available, and a fair knowledge of the common Indian vernaculars will be found sufficient for the elucidation of the customs of all but the wildest tribes.

In these ways India offers special facilities for the systematic collection of ethnographical data on a large scale, and for testing these data by repetition and comparison to any extent that is considered desirable. But this is not all. Not only do the administrative conditions of the country lend themselves readily to the collection of evidence, but the social system is so constituted as to render that evidence peculiarly valuable and telling. In Europe, and in most parts of the world, where anthropological enquiries have been pursued, the prevalence of *mélissage*, or the crossing of races, constantly tends to complicate the investigations and to obscure and confuse the results. There is nothing to prevent the union "of the blond Kymri with the dark-haired dweller on the Mediterranean, of the brachy-cephalic Celt with the dolicho-cephalic Scandinavian, of the tiny Laplander with the tall Swede."¹ In fact, all the recognised nations of Europe are the result of a process of unrestricted crossing which has fused a number of distinct tribal types into a more or less definable national type. In India, whatever may have been the case centuries ago, nothing of this sort is now possible. The institution of caste breaks up the population of the continent into a countless number of mutually exclusive aggregates of homogeneous composition, and forbids a member of one group to marry within any group but his own. The result of this application to marriage of the primitive principle of *Taboo* is to make isolation rather than integration the dominant tendency in India, while the existing groups maintain their exclusive deviation from the prescribed standard of social or propriety is apt to become the occasion for the form-

the Government of India, and commended by them to the various provincial Governments with whom the initiative in such matters necessarily rests; but in no province except Bengal was it found possible to set on foot any large scheme of original research. Early in 1884 the Government of Bengal took the matter up, and in February, 1885, I was appointed for a period of two years, afterwards extended to three, to conduct an inquiry into castes and occupations throughout Bengal. No specific instructions were given to me, and it was understood that I was at liberty to adopt any line of investigation that I thought likely to yield interesting results. After making some experimental enquiries in Behar and North-Eastern Bengal and preparing a provisional scheme, I visited Lahore for the purpose of conferring with Mr. Denzil Ibbetson, of the Bengal Civil Service, and Mr. John Nesfield, Inspector of Schools in Oudh, from whom I obtained most valuable advice and assistance. One chief object of our deliberations was to secure, so far as might be possible, that ethnographical researches carried on in different provinces of the Bengal Presidency should proceed on the same general lines, in order that their results might be of some service to students of comparative ethnology in Europe. We considered the question of the best means to be adopted to collect original data in addition to the facts already on record in books, official reports, and publications of learned societies. For this purpose two sets of questions were drawn up—a general and a special series. The general series was framed with the object of bringing out, by as few and as simple questions as possible, the leading characteristics of any particular caste. The special series went into more detail, and attempted to cover the main heads of ethnographical inquiry in India. Our endeavour throughout was not so much to strike out new lines of research, as to adapt the methods already sanctioned by the approval of European men of science to the special conditions which have to be taken account of in India. Considerable use was made of the series of questions or heads of inquiry prepared by a Committee of the Anthropological Institute of Great Britain and Ireland in 1874, and to this doubtless is owing the fact that when the proceedings of the Conference were submitted by me to criticism to a number of scientific experts and learned societies in Europe, I received comparatively few complaints that subjects had been omitted or inadequately dealt with.

The scheme of inquiry sketched by the Conference covered a far wider range than can have been contemplated by the Census Commissioner or the Government of India. But this extension was found to be unavoidable directly the attempt was made to carry it out by Mr. Plowden. In

dealing with the intricate fabric of social usage it is difficult to define the component parts of the main subject closely enough to distinguish minutely the point where administrative utility fades away into scientific interest. Most of all in the East, where religion, law, custom, and morality, are all inextricably mixed and jumbled up together, would the attempt to attain any such precision be futile and misleading. It was understood, therefore, from the first, that the objects to be aimed at in the inquiry were partly scientific and partly administrative, and the Government of Bengal determined to publish and circulate the questions framed by the members of the Lahore Conference, and to enlist the aid of the district officers and others who were in a position to help in obtaining answers to them. Experience has shown that a single person can do very little towards collecting the requisite information within a given time. To elicit facts by oral inquiry is necessarily a lengthy process, and accuracy can only be secured by testing the statements of individuals or groups of individuals by numerous independent observations. On the other hand, it was essential that no more labour than was absolutely necessary should be thrown upon the regular administrative staff, and particularly upon the district officers, who always have their hands full of urgent executive work. Their influence, however, was from the first brought to bear, and through their agency, supplemented by a good deal of personal inquiry and correspondence, were secured the services of nearly 200 official and non-official correspondents scattered over every district of Bengal, and communicating in their turn with an indefinite number of representatives of the tribes and castes which formed the subjects of investigation.

In organizing the inquiry the object kept in view throughout was to multiply independent observations and to give as much play as possible to the working of the comparative method. The local correspondents were instructed to extend their inquiries over a wide field, to mistrust accounts published in books, to deal with the people direct, and to go for their information to the persons most likely to be well informed on questions of custom, such as priests, marriage brokers, genealogists, and headmen of castes, tribes and smaller groups. Correspondents were invited to clear up discrepancies thus brought to notice, and frequently an entire report was sent back, with marginal annotations, for further inquiry upon points which appeared to be doubtful. As the inquiry proceeded, several special subjects were taken up and examined in circular letters addressed to all correspondents with the object of summarizing the general results ascertained up to a certain stage, and

thus indicating lines of inquiry which might lead to fuller results. Among the subjects thus dealt with may be mentioned the working of the rule of exogamy, which proved to be considerably more intricate than had at first been supposed; the order of social precedence and the considerations by which it is determined; the status of different castes in relation to the land and to the curious tenures held on terms of police service in certain districts, and their comparative aptitude for emigration to the tea districts of Assam and the various Colonies which employ coolie labour.

During several years of district work in Chota Nagpore, a region peculiarly rich in survivals of archaic usage, and again, while organizing the Ethnographic Survey, some special opportunities have come in my way of observing the progress of the great religious and social movement described by Sir Alfred Lyall as "the gradual Brahmanising of the aboriginal, non-Aryan, or casteless tribes."¹ That this movement is progressing on a large scale is beyond doubt; but it by no means maintains a uniform character throughout its sphere of action, and it includes in Bengal at least four distinct processes, which may be analysed as follows:—

1. The leading men of an aboriginal tribe, having somehow got on in the world and become independent landed proprietors, manage to enrol themselves in one of the leading castes. They usually set up as Rajputs; their first step being to start a Brahman priest, who invents for them a mythical ancestor, supplies them with a family miracle connected with the locality where their tribe are settled, and discovers that they belong to some hitherto unheard-of clan of the great Rajput community. In the earlier stages of their advancement they generally find great difficulty in getting their daughters married, as they will not marry within their own tribe, and Rajputs of their adopted caste will of course not intermarry with them. But after a generation or two their persistency obtains its reward, and they intermarry, if not with pure Rajputs, at least with a superior order of manufactured Rajputs, whose promotion into the Brahmanical system dates far enough back for the steps by which it was gained to have been forgotten. Thus a real change of blood may take place, while in any case the tribal name is completely lost, and with it all possibility of accurately separating this class of people from the Hindus of purer blood, and assigning them to any particular non-Aryan tribe. They have been absorbed in the fullest sense of the word, and henceforth pose, and are locally accepted, as high-caste Hindus. All

stages of the process, family miracle and all, can be illustrated by actual instances taken from the leading families in Chota Nagpore; but such details would be irrelevant to my present purpose.

2. A number of aborigines embrace the tenets of a Hincū religious sect, losing thereby their tribal name and becoming Vaishnabs, Ramayats, and the like. Whether there is any mixture of blood or not will depend upon local circumstances and the rules of the sect regarding intermarriage. Anyhow the identity of the converts as aborigines is usually, though not invariably, lost, and this also may therefore be regarded as a case of true absorption.

3. A whole tribe of aborigines, or a large section of a tribe, enrol themselves in the ranks of Hinduism under the style of a new caste, which, though claiming an origin of remote antiquity, is readily distinguishable by its name from any of the standard and recognized castes. Thus the great majority of the Kochh inhabitants of Rungpore now invariably describe themselves as Rajbansis or Bhanga-Kshatriyas, a designation which enables them to represent themselves as an outlying branch of the Kshatriyas who fled to North-Eastern Bengal in order to escape from the wrath of Parasu-Rāma. They claim descent from Raja Dazarath, father of Rama; they keep Brahmans, imitate the Brahmanical ritual in their marriage ceremony, and have begun to adopt the Brahmanical system of *gotras* or exogamous groups. In respect of this last point they are now in a curious state of transition, as they have all hit upon the same *gotra* (Kasyapa), and thus habitually transgress the primary rule of the Brahmanical system, which absolutely prohibits marriage within the *gotra*. But for this defect in their connubial arrangements—a defect which will probably be corrected in a generation or two, as they and their *purohīts* rise in intelligence—there would be nothing in their customs to distinguish them from Aryan Hindus, although there has been no mixture of blood, and they remain thoroughly Kochh under the name of Rajbansi.

4. A whole tribe of aborigines, or a section of a tribe, become gradually converted to Hinduism without, like the Rajbansis, abandoning their tribal designation. This is what is happening among the Bhumij of Western Bengal (Manbhum, Singbhum, Midnapore, and Bankura). Here a pure Kolarian race have lost their original language (Mundāri), and now speak only Bengali: they worship Hindu gods in addition to their own (the tendency being to relegate the tribal gods to the women), and the more advanced among them employ Brahmans as family priests. They still retain a set of totemistic exogamous subdivisions closely resembling those of the Mundas and the Sonthals, but they

are beginning to forget the totems which the names of the subdivisions denote, and the names themselves will probably soon be abandoned in favour of more aristocratic designations. The tribe will then have become a caste, and will go on stripping itself of all customs likely to betray its true descent. The physical characteristics of its members will alone survive. After their transformation into a caste, the Bhumij will be more strictly endogamous than they were as a tribe, and even less likely to modify their physical type by intermarriage with other races.

There is every reason to suppose that the movement of which certain phases are roughly sketched above, has been going on for many centuries, and that, although at the present day its working can probably be most readily observed in Chota Nagpore, the Orissa hills, and parts of Eastern and Northern Bengal, it must formerly have operated on a similar scale in Bengal Proper and Behar. The well-known tenth chapter of Manu, which endeavours to account for the existence of the non-Aryan castes by representing them as the offspring of marriages between the four original castes, gives clear indications that in Manu's time, fixed by Burnell at 500 A.D., some of the non-Aryan races had already begun to intrude upon the Brahmanical caste system, while others were still in the tribal stage. Arguing from facts now observable, it seems likely that some of the castes alleged by Manu to be the result of more or less complicated crosses between members of the four original castes or their descendants, are really tribes which had lost their identity like the Rajbansis; for at the present day, if we look merely to customs, ceremonies, and the like, we find in the majority of cases that the admission of a tribe into the charmed circle of Hinduism results after a generation or two in the practical disappearance of the tribe as such. Its identity can no longer be traced by direct inquiry from its members, or inferred from observation of their usages. The Rajbansi and the Bhumij are instances of tribes in an early stage of transition, whose antecedents can be accurately determined. Later on not only do distinctive customs fall into disuse, but the tribe itself, after its promotion to the rank of a caste, breaks up into a number of endogamous groups, each of which practically forms a separate caste. But even in this extreme case the physical characteristics which distinguished the tribe tend on the whole to be preserved: and it is this persistence of the type which accounts for the differences of feature, which, though only definable by scientific methods, are marked enough to render it possible within certain limits to make a fair guess of a man's caste from his personal appearance.

type observable within the range of the recognized caste organisation, coupled with the difficulty of throwing much light upon the true origin of the lower and intermediate castes by collating customs and ceremonies which they have borrowed in the most liberal fashion from the higher castes, suggested to me the possibility of applying to the leading tribes and castes of Bengal the methods of recording and comparing typical physical characteristics which have yielded valuable results in other parts of the world. Those methods might, it seemed, enable us to detach considerable masses of non-Aryans from the general body of Hindus, and to refer them, if not to the individual tribes to which they originally belonged, at least to the general category of non-Aryans, and perhaps to such specific stocks as Kolarian, Dravidian, Lohitic, Thibetan, and the like. If, for example, in Europe, where the crossing of races constantly obscures their true affinities, the examination of statistics drawn from physical measurements has been found to throw light upon the distribution of different race stocks in the population, a similar analysis of the leading tribes and castes in Bengal, where crossing operates only on a comparatively small scale, would *prima facie* appear likely to enable us to determine the divergence of each of these aggregates from known Aryan or non-Aryan types. Such an analysis would, it was thought, be regarded with approval by the leaders of the Hindu community in all parts of Bengal, among whom both the orthodox and the advanced lay considerable stress upon the purity of their Aryan descent: it would appeal in some measure to scientific men in Europe, and the results would command whatever political value may attach to the demonstration that a given population either is or is not composed of homogeneous ethnic elements.

Starting with this general idea, I wrote to Professor Flower explaining the nature of the inquiry on which I was engaged, and the particular difficulty which I desired to overcome, and asked for his advice as to the character and number of the measurements to be taken, the apparatus which should be used, and the forms in which the results should be recorded. In a long letter discussing the subject very thoroughly, Professor Flower was good enough to give me most valuable general advice as to the most profitable line of inquiry to adopt, while for fuller instructions concerning the mode of operations to be followed in detail he referred me to the exhaustive work, "*Les Éléments d'Anthropologie Générale*," by Dr. Paul Topinard, Professor of the School of Anthropology, and Secretary to the Anthropological Society of Paris. Having satisfied myself that Professor Topinard's instructions for dealing with living subjects, and the instruments prescribed by him were applicable

to Indian conditions, I proceeded after making some experimental measurements in Rangpur, to frame a complete scheme for giving effect to his system. This scheme was submitted to Professors Flowers and Topinard for criticism, and after having received their approval, was sanctioned by the Government of Bengal, the services of Civil Hospital Assistant Babu Kumud Behari Samanta, then attached to the Tibet Mission, being placed at my disposal for the purpose of taking measurements. After some experience had been gained in the working of the system in Bengal, proposals were drawn up for extending it to other parts of India. In the North-West Provinces and Oudh, Sir Alfred Lyall sanctioned a special grant of Rs. 1,000 for instruments, measuring agency, &c., and a fine series of measurements were taken by Chandi Singh, an ex-pupil of the Barampur Medical School, under the supervision of Mr. J. C. Nesfield, Inspector of Schools for Oudh, himself a high authority upon the castes of that part of India. A small, but very interesting set of measurements was also taken in the Panjab by Civil Hospital-Assistant Alauddin, under the supervision of Deputy Surgeon-General Stephen. In every case the measurers were taught the use of the instruments by me, and were supplied with printed instructions, defining the procedure with extreme minuteness of detail, and discussing at length a variety of difficulties which experience had suggested to me.

It will be seen that out of the proposal merely indicated by the Census Commissioner in 1882, two distinct lines of research have been developed, namely: (1), an ethnographic inquiry into the customs of all tribes and castes in Bengal, which either form a substantial proportion of the population of any district, or though numerically insignificant, are specially interesting from the scientific point of view; and (2) an anthropometric inquiry according to Professor Topinard's system, into certain of the physical characteristics of selected tribes and castes in Bengal, the North-West Provinces, Oudh, and the Panjab. The materials collected under these heads, although falling lamentably short of what a scientific standard of completeness would demand, have nevertheless reached a stage at which it becomes clear that it would be unwise to defer publication any longer in the hope of more fully solving the numerous problems which press for solution. While, pending the final publication of the *mes* in which the results of the *died*, I may be permitted to say of laying before the Anthropo- some of the chief

conclusions which the inquiry seems to indicate is especially welcome. The criticism thus elicited will, I am confident, be of the utmost service to me in completing the work which still remains to be done.

I have already stated that the anthropometric branch of the survey was conducted on the system prescribed by Professor Topinard in his "*Éléments d'Anthropologie Générale.*" From the numerous measurements suggested by him twelve were selected, and to these were added, under Professor Flower's advice, the bimalar and nasomalar dimensions recommended by Mr. Oldfield Thomas in his paper on the Torres Straits Islanders published in the "*Journal of the Anthropological Institute*" for May, 1885. These fourteen measurements were taken for fifteen castes and tribes in Bengal Proper, five in the Chittagong Hills, ten in the Darjeeling Hills, ten in Behar, seventeen in Chota Nagpore, twenty-three in the North-West Provinces and Oudh, and nine in the Panjab, in all eighty-nine distinct groups, comprising nearly 6,000 persons. The results have been tabulated in the usual form, and with certain introductory and explanatory matter fill two large octavo volumes.

The standard theory of the making of the Indian people is well known, and need not be elaborated at length. It is believed that a tall, fair-complexioned dolicho-cephalic and presumably lepto-rhine race, whom we have now Professor Sayce's authority for calling Aryans, entered India from the north-west and slowly fought their way, conquering and colonizing down the valleys of the great rivers. At an early stage of their advance they came into collision with a black snub-nosed race, who were partly driven away into Central and Southern India, where we find their descendants at the present day, and partly absorbed by the conquerors. Some writers, notably Colonel Dalton and Mr. J. F. Hewitt, discover among the remnants of the black race two distinct types or groups of tribes, known as the Dravidian and the Kolarian. The Dravidians are supposed to have entered India from the north-west, and the Kolarians from the north-east, and Mr. Hewitt, in a paper published in the *Journal of the Royal Asiatic Society*, goes so far as to speak of the latter as Mongoloid.

No one can have glanced at the literature of the subject and in particular at the Vedic accounts of the Aryan advance, without being struck by the frequent references to the noses of the people whom the Aryans found in possession of the plains of India. So impressed were the Aryans with the shortcomings of their enemies' noses that they often spoke of

them as "the noseless ones," and their keen perception of the importance of this feature seems almost to anticipate the opinion of Dr. Collignon that the nasal index ranks higher as a distinctive character than the stature or even than the cephalic index itself. In taking their nose then as the starting point of our present analysis, we may claim to be following at once the most ancient and the most modern authorities on the subject of racial physiognomy.

As measured on the living subject, the nasal index consists of the relation of the maximum breadth of the nose at its base outside the nostrils to its total height from the nasal spine to the root. It is expressed in the form of a percentage, the height of the nose being taken at 100. In a paper published in the "*Revue d'Anthropologie*" in January, 1887, Dr. Collignon proposes the following classification and nomenclature of the index:—

Ultra leptorhine	40 and under.
Hyper leptorhine	40 to 54·9.
Leptorhine	55 to 69·9.
Mesorhine	70 to 84·9.
Platyrrhine	85 to 99·9.
Hyper platyrrhine	100 to 114·9.
Ultra platyrrhine	115 and over.

In the first place it will be convenient to distinguish the extreme types which are to be found within each of the three main groups. Under the head of platyrrhine the following are the highest tribal averages:—

100 Male or Male Paharia; also called Sanria or Samil Paharia: of the northern hills of the Santal Parganas, a very peculiar tribe usually classed as Dravidian	94·5
100 Mal Paharias (distinct from the tribe last mentioned) inhabiting the southern hills of the same district	92·9
21 Korwas, a wild and shy tribe of Chota Nagpore	92·5
100 Mundas, one of the most characteristic Kolarian tribes of Chota Nagpore	89·9
100 Kharwar of Chota Nagpore	89·7
100 Eruys of Chota Nagpore, Dravidian... ..	88·7

Turning to the extreme there are among the

Parab	66·9
Mongolian of Sakim... ..	67·2

80 Patháns of the Panjab	68·4
80 Sikhs of the Panjab	68·8
33 Awans, a trading caste of the Panjab	68·8
60 Biloches of Bilochistan	69·4
Under the head mesôrhiue we have:—	
19 Machhis, a fishing caste of the Panjab	70·0
100 Kayasths, the writer caste of Lower Bengal	70·3
100 Bengal Brahmins	70·4
27 Arora, a trading caste of the Panjab claiming equality with the Khattris	71·2
36 Tibetans of Sikkim	71·4
26 Bábhans of the North-West Provinces	73·0

Returning to the platyrrhine group, I wish to lay special stress upon the fact that all the tribes included in it are perfectly compact and vigorous aggregates. All are strictly endogamous, three have a strong communal organisation of their own, and none show any signs of dying out or of becoming absorbed into other groups. Although a trained observer may sometimes be able to distinguish members of particular tribes, all the six tribes which I have mentioned conform in the main to a single physical type which is absolutely different from that of the average Hindu of the plains of Northern India. Putting aside for the moment the minor tribal characteristics which skilled observers profess to be able to detect, it may safely be said that the people I have mentioned are all of very dark complexion, the colour of the skin ranging from dark brown to a peculiar charcoal-like black, which is very striking. Their stature is low and their build is sturdy. Their appearance, in fact, is precisely that of the black, noseless, squat *Dasyus* described in the Vedas. It may be added that they appear to have great powers of resisting jungle fever, that most of them emigrate readily to the Indian tea districts of Assam and to the West Indies, and that the work of opening up the remotest and most unhealthy tea plantations of Assam has been done by them and by cognate tribes.

In respect of certain characteristic customs the platyrrhine group are equally distinct from the higher and intermediate strata of the population. Their system of exogamy is based upon totems, not on the eponymous or local groups which we find a few stages higher up. As a rule their daughters are married as adults; a bride-price is paid; and there are no signs of the bridegroom-price so common among the higher castes in India. Widows are allowed to marry again, and are usually expected to marry their late husband's younger brother. Divorce is readily allowed; divorced women may marry again, virginity

is little prized, and the relations of the sexes are characterised by considerable laxity. Their religion is of the type which, for want of a better name, we may call animistic, its leading idea being that man is compassed about by a multitude of powers (I prefer not to call them spirits) mostly destructive and malevolent, which require constant propitiation in some material form. This is the real working belief of the six tribes which I have named, though two of them—the Bhuiyas and Kharwars—have added to it a slight and partial veneer of Hinduism.

The leptorhine and mesorhine groups include, with two exceptions, the social aggregates among which we should *prima facie* expect to find the largest revival of Aryan characteristics. The exceptions are the Lepchas and Tibetans of Sikkim, the former of whom are leptorhine at 67.2, while the latter are mesorhine at 71.4. For both groups, however, the naso-malar index prescribed by Mr. Oldfield Thomas denotes their Mongolian origin, and places them outside the Indian series of groups. For the rest the only point deserving special notice appears to be the high place in the mesorhine group taken by the Brahmans and Kayasths of Bengal. This seems to bear out the traditional account of the north-western origin of these castes and to refute the not uncommon opinion that they are mainly of non-Aryan descent. The latter conjecture indeed appears to rest upon no more solid basis than the general impression that the Bengal Brahmans are as a class darker than the Brahmans of the North-West Provinces. The impression may be correct; but colour is hard to judge, and no satisfactory means of recording its gradations has as far as I know yet been devised. Summing up the entire body of evidence furnished by the nasal index we may say that it establishes the existence in India of two widely distinct types, the one platyrhine to a degree closely approaching to the negro, and the other leptorhine in much the same measure as the population of Southern Europe. Between these extremes we find a number of intermediate types, the physical characteristics of which suggest the inference that they must have arisen from the intermixture of members of the extreme types and their descendants. It is true that the rigid enforcement of the caste principle at the present day renders any such intermixture impossible, but it may be gathered from the account of the caste system given in the so-called Institutes of Manu that the rule of endogamy was less stringent in earlier

the most notable feature of these statistics of the nasal index is, however, their correspondence with—I should perhaps say with—concomitant variation in relation to two other sets of facts—namely, the order of social

precedence and secondly the character of the exogamous subdivisions by which the matrimonial arrangements of every caste are regulated. Take the fifteen castes of Bengal Proper, the two castes of Behar, the seventeen castes of Chota Nagpore, and the twenty-three castes of the North-West Provinces for which this index has been measured, arrange them in the order of the nasal index, putting the lowest or most leptorhine index at the top, and it will be found that the order thus arrived at corresponds substantially with the order of social precedence. Everywhere the Brahman Kayasth and Rajput stand at the top of the list; everywhere the Chamars and Musahars are at the bottom. Within certain geographical boundaries it may be laid down at least as a working hypothesis, if not as an absolute law, that the social position of a caste varies inversely as its nasal index. I say within certain boundaries, because the figures for the nine castes measured in the Panjab do not appear to conform to the rule. But with regard to the Panjab it is possible that fuller inquiry may show either that the same law holds good, or that its disappearance marks the limit beyond which there has been little or no intermixture with the platyrrhine type. The existing statistics are clearly inadequate. I may explain that the Panjab government were in such extreme financial difficulties when my inquiries were going on that they were unable to give any assistance or even to pay for the necessary instruments, and I owe the few figures we have to the exertions of Dr. Stephen, Sanitary Commissioner of the Panjab and the voluntary labour of Alauddin, a Civil Hospital-Assistant in Lahore.

The correspondence between the nasal index and the character of the exogamous subdivisions of various castes is equally striking. In the course of the ethnographic survey, special pains were taken to ascertain these groupings, and long lists of them have been arranged and classified for publication. These, as I shall afterwards have occasion to explain, are probably the most valuable social data that can now be collected. For the present I have only to point out that in Bengal Proper castes with a platyrrhine index have totemistic exogamous divisions; that castes with indices between 85 and 80 have a mixture of totemistic eponymous and local groups; the tendency being as Mr. Andrew Lang has excellently expressed it, for the totem to "slough off," as the caste goes up in the world; that castes with indices between 80 and 75 have a mixture of local and eponymous sept-names, and that castes below 75 have eponymous septs. In Behar and the North-West Provinces, the totem is not so prominent, the influence of the higher castes has been stronger, and eponymous groups are found associated with higher indices than is the case in Bengal. Conversely in Chota

Nagpore, the totem-groups hold their own undisputed down to an index of 79, and possibly lower. These variations admit of being readily accounted for by reverence to local conditions, but I will not attempt to analyse them further here. Enough has been said to prove that a high average nasal index is usually, I may even say invariably, found along with low social position and totemistic subdivisions, while conversely a low index denotes high social rank and a system of eponymous subdivisions.

Reference has already been made to the naso-malar index devised by Mr. Oldfield Thomas, as a substitute for Professor Flower's naso-malar angle, and described in Mr. Thomas's paper on a collection of human skulls from Torres Straits, published in the "Journal of the Anthropological Institute" for May, 1885. In September, 1886, Professor Flower kindly drew my attention to this index as the only method by which the relative preponderance of a Mongolian or Caucasian element can be detected. He added, "If you can apply it to your border tribes—Lepchas, &c.—and then see if the character crops out in any of the hill tribes of Central India, I shall be greatly interested; in fact, for this special point, the supposed affinity of the latter with the Mongolian races, I would prefer this to any other measurement, as platyopy is certainly far more characteristic than brachycephaly of these races."

This index has been taken for 54 castes and tribes, viz., 8 in Bengal Proper, 5 in the Chittagong Hills, 10 in the Darjeeling Hills, 5 in Behar and the North West Provinces, 17 in Chota Nagpore, and 9 in the Panjab. The average for the Panjab groups is 116, ranging from 113.1 in the Khatri, a trading caste of Aryan type, to 117.9 in the Biloch, 117.1 in the Pathan, and 116.6 in the Sikh. In the Chittagong Hills on the other hand, the Kuki have an index of 106.2, and the Chakmas of 106.4, while the index of the Maghs is 107.7. Of the Darjeeling tribes the Limbu average 106.9, the Khambus 107.1, the Lepchas 108.1. Forty-nine Tibetans of Tibet yield an average index of 108.8, 36 Tibetans of Sikkim give 108.9, 19 Tibetans of Bhutan 109.1. The Newars, who claim to be the aborigines of Nepal, show an index of 101.2. In Bengal the Mál Paharia have an index of 109.8, and the Malé of 110, while the Rajbansi or Kochh, a very large tribe recently promoted to the status of a caste, show an index of 110.8. Seventeen tribes of Chota Nagpore yield an average of 110.4, ranging from 107.6 in the Birhor to 114.2 in the Dom.

Among the large tribes we get the following results in ascending order—

Kharwar
muva

109.4
109.6

northern frontiers a fringe of brachycephalic races, intercourse with whom is more or less frequent according to the means of communication available at different seasons, the occasions for trade, and the varying political relations between the hill tribes and the dwellers in the plains. We observe also, among certain of the Bengal castes, a distinct tendency towards brachycephaly, which shows itself in the Mahomedans and Chaudals of Eastern Bengal (indices 78.0 and 78.1), is more distinctly marked in the Kayasths (78.3), and reaches its maximum in the Bengal Brahmans (78.7). Bengal, then, taken as a whole, exhibits a high range of mesaticephaly verging on brachycephaly. On the north-west and west of Bengal Proper lie Behar and Chota Nagpore, both mesaticephalic with a tendency towards dolichocephaly; but in the case of Behar, the Brahmans, unlike those of Bengal, belong to the latter or dolichocephalic type, while in Chota Nagpore the wilder non-Aryan races are the most dolichocephalic. Further up the Ganges valley the people of the North-West Provinces are wholly dolichocephalic, and the same may be said of the Panjab, with the exception of trans-Indus people, like the Pathan and Biloch.

These facts seem to afford some ground for the conjecture that the peculiar and characteristic type of feature which distinguishes the higher castes of Bengal Proper from the corresponding ranks of society in Northern and Western India may be due to an infusion of non-Aryan blood, derived, not from the black races of Central and Southern India, but from the brachycephalic Indo-Burmese stocks further east.

Another point to be noticed is that the dolichocephaly so conspicuous in the North-West Provinces, may be a mark of Aryan or non-Aryan descent according to the social standing of the caste in which it occurs. The Brahman of the North-West Provinces is dolichocephalic at 73.1, the Kol of the same area at 72.4; but it is impossible to suppose that the two groups have derived this characteristic from the same source, and the prevalence of dolichocephaly among the unquestionable non-Aryans of Chota Nagpore seems to afford a clue to the difficulty. The Kol gets his long head from the non-Aryan races to whom his colour and the proportions of his nose affiliate him, while the Brahman's dolichocephaly comes to him from the Caucasian stock.

Two more points out of the fourteen which have been observed demand a brief notice here. Cuvier's facial angle, as measured by 1 of *Topinard's* goniometer, has recently been made the subject of a valuable study by Dr. Collignon, who, during the limited range of variation, angle is a measurement

of the first rank, because it expresses exclusively an ethnic characteristic, and the data which it furnishes are not correlated to any other character. I may add that Professor Topinard's goniometer, several of which have been made for me by Collin, of Paris, is an instrument of great accuracy, easy to work, and not at all liable to get out of order.

I select from the mass of data available the following cases of low and high averages:—

Low.		High.	
Magh of Chittagong Hills ..	63·5	Gujar of Panjab ..	70·7
Mahommedan of Eastern Bengal ..	63·7	Sikh ..	70·4
Lepcha of Darjeeling Hills ..	64·1	Biloch ..	70·3
Kayasth of Bengal ..	64·2	Rajput of N.W.P. ..	69·6
Bhumij of Chota Nagpore ..	64·3	Brahman of Behar and N.W.P. ..	68·7
Tibetan of Tibet ..	64·4	Brahman of Bengal ..	67·1

It will be seen that the half-dozen highest average indices include three tribes of the Panjab and north-west frontier, and the Rajputs and Brahmans of the Ganges valley. The other group is a curious medley of races among which it is difficult to account for the presence of the Bengal Kayasths, a caste of fairly high social position and considerable intellectual attainments.

The figures of stature are very interesting, but I have not space to devote to them more than a few passing remarks. The lowest average stature, 156·2 centimetres, is found among the servile weaving caste of Chota Nagpore; the highest, 171·6, among the Sikhs. The nine Panjab castes give an average of 168·4; twenty-three castes of the North-West Provinces show 163·5; ten of Behar, 163·0; fifteen of Bengal, 162·0; ten of the Darjeeling Hills, 161·2; eighteen of Chota Nagpore, 160·2; five of the Chittagong Hills, 159·2. In connection with the statistics of height, I venture to draw attention to the height and weight index, which shows the number of grammes per centimetre of height, and thus serves to distinguish certain types of figure. Again selecting extreme cases, I find that the Munda tribe of Chota Nagpore have an average index of 372·6, and the Tibetans of Sikkim, 370·7, while the trading Khatri caste of the North-West Provinces show 290·7. The Sikh index is 320·2, the Lepcha, 350·5, the Gurung, 331·6.

The foregoing analysis enables us to distinguish three main types in the population of India at the present day, viz:—

- I. A leptorhine, pro-opic, dolichocephalic type, of tall stature, light build, long and narrow face, comparatively fair complexion, and high facial angle. This type is most marked in the Panjab. Their exogamous groups are eponymous; names of Vedic saints or heroes.

Santal	...	...	...	110.6
Munda	...	...	...	111.3
Oraon	...	...	...	113.6
Bhumij	...	...	...	113.8

As regards the known Mongolian tribes of the northern and north-eastern frontier, and the apparently Aryan races of the Panjab, the naso-malar index gives very clear and satisfactory results. Unlike most measurements taken on the living subject it appears to admit of comparison with cranial indices such as those given by Mr. Oldfield Thomas in the paper already referred to. I may venture, however, to suggest that the classification proposed by Mr. Thomas into—

Platyopic	=	rac	h	av	in	d	ex	b	e	l	o	w	107.5,
Mesopic	=	"	"	"	"	"	"	"	"	"	"	"	107.5 to 110.0,
Pro-opic	=	"	"	"	"	"	"	"	"	"	"	"	above 110.0,

may require reconsideration, in view of the fact that the superior limit of the index appears from the Panjab figures to run in individual cases as high as 125 and over. In order to include such unquestionably Mongolian types as the Gurung tribe of Nepal, I should be inclined to extend platyopy to 109.9 or 110, to reckon mesopy from 110 to 112.9, and to count only indices of 113 and over as pro-opic. But it is perhaps premature to make any proposals of this sort until further data have been collected.

The bearing of the naso-malar index on the problem of the racial affinities of the black races of Chota Nagpore and Central and Southern India needs to be considered in the light of its relations to the cephalic and nasal indices. Judging from the naso-malar index alone, one would be inclined to say that the hypothesis of their Mongolian origin might be tenable. But when it is observed that a low naso-malar index, which in the Darjeeling and Chittagong tribes is always associated with a brachycephalic cranium, occurs among the so-called Dravidians and Kolarians in connexion with dolichocephaly and mesati-cephaly tending towards dolichocephaly, and that the most dolichocephalic types are also those which have the lowest naso-malar index, it is clear that some other explanation of their tendency to platyopism must be sought for. This conclusion is strengthened by the difficulty of reconciling their extremely dark colour and their nasal index approaching to that of the Negro with the theory of their Mongolian descent.

With the cephalic index I will deal very briefly, and will endeavour to abstain from reciting figures. Taking Bengal Proper as our starting point, we find on the eastern and

- II. A platyrrhine, mesopic or nearly platyopic, dolichocephalic type, of low stature, thick-set made, very dark complexion, relatively broad face, usually low facial angle. This type is most distinct in Chota Nagpore and the Central Provinces. Its sections are totemistic, like those of North American Indians—that is, they are names of animals, plants, or artificial objects, to all of which some form of taboo applies.
- III. A mesorrhine, platyopic, brachycephalic type of low or medium stature, sturdy build, yellowish complexion, broad face and low facial angle. This type is found along the northern and eastern frontiers of Bengal. Their exogamous groups are very curious, being mostly nick-names of the supposed founder of the sept, such as "the fat man who broke the stool," and others less fit for publication.

Assuming that these three types may be taken to represent so many distinct races or stocks, the question then arises, can we in any way account for them or affiliate them to other known families of mankind? In the case of the brachycephalic and platyopic type no difficulty presents itself. All of the groups which come within this category are demonstrably of more or less pronounced Mongolian descent; and we may conveniently call them Mongoloid. The type, as I have already remarked, is essentially a frontier type, and its influence can in no case be traced far into the interior of India. The Kochh or Rajbansi, a large tribe of Bengal, who now pose as an outlying branch of the Rajputs, are indeed commonly supposed to have some strain of Mongolian blood among them, but I doubt whether this opinion is well founded. A slight degree of platyopy is, it is true, met with among them, but this may equally well be accounted for on the supposition of their affinity to the platyrrhine type.

Special interest attaches to the leptorrhine dolichocephalic type in view of Herr Karl Penka's recent advocacy, in "*Origines Ariacae*" and "*Die Herkunft der Arier*," of the possible Scandinavian origin of the Aryans. If it be accepted that Herr Penka has proved the typical Aryan to be dolichocephalic, there would seem to be some grounds for believing that in the dolichocephalic leptorrhine type of the Panjab and north-western frontier at the present time we may recognise the descendants of the invading Aryans of 1000 years ago, changed no doubt in many respects, but retaining the more enduring features in the shape of their head, their eyes, and their complexion. Survivals of the reddish blonde

complexion are moreover still to be found, as Penka has pointed out, and as I myself have seen, among the Kafirs from beyond the Panjab frontier. Any way the striking preponderance of dolichocephaly in the Panjab and the North-West Provinces and its gradual increase as we travel up the Ganges valley towards the traditional Aryan tract, tend both to strengthen Penka's hypothesis and to enhance the credibility of early Indian legends. These facts go also to show that Penka is mistaken in supposing that the Indian branch of the Aryans became brachycephalic on their way to India. Had this been so, the dolichocephaly which now distinguishes them could only have been derived from crosses with the black race, and the Aryans could hardly have become dolichocephalic in this way without also becoming platyrrhine.

Turning now to the platyrrhine type we may observe that the figures show the current distinction between Dravidians and Kolarians, on which stress has been laid by Dalton and others, to be a purely linguistic character not corresponding to any appreciable differences of physical type. We may claim therefore for these data that they have accomplished the task set before himself by Mantegazza in his "*Studi sull' Etnologia dell' India*," and "erased the Dravidian colour from the ethnic chart of India," though not precisely in the manner contemplated by the Italian anthropologist. The hypothesis of the north-eastern origin of the so-called Kolarians urged by Colonel Dalton and recently advocated by Mr. J. F. Hewitt, must also be abandoned as inconsistent with the dolichocephalic skull of the typical representatives of the group. Whatever the Kolhs may be, they certainly are not a Mongoloid race.

The remarkable correspondence between the gradations of type as brought out by certain indices and the gradations of social precedence further enables us to conclude that *community of race*, and not, as has frequently been argued, *community of function*, is the real determining principle, the true *causa causans*, of the caste system. Everywhere we find high social position associated with a certain physical type and conversely low social position with a markedly different type. The conclusion thus suggested is confirmed by evidence derived from the character of the exogamous divisions. Divisions of a totemistic and therefore more primitive character occur among tribes of a lower social position and of lower physical type, while divisions taking their names from saints or heroes, which indicate a more advanced stage of social development, are met with in endogamous aggregates of higher physical type and higher social position. It is difficult to see how this state of things could have resulted from the operation of the principle

laid down by Mr. Nesfield in his sketch of the Caste System of the North-Western Provinces and Oudh, that function and function alone has determined the formation of the endogamous groups which in India are called castes. Moreover, had the latter principle been the true motive power of the system, it is hard to understand why within a limited area subject apparently to similar social influences, we should find a large number of castes all following the occupation of agriculture in precisely the same way, but nevertheless insisting vigorously upon the essential differences of blood which in their view render inter-marriage a thing impossible and inconceivable. The subject is too large and too intricate for me to attempt any detailed exposition of it here, and I must content myself with merely stating in general terms the conclusion which the recent measurements appear to indicate, viz., that the Indian caste system is a highly developed expression of the primitive principle of *taboo* which came into play when the Aryans first came into peaceful contact with the platyrrhine race which we may provisionally call Dravidian. This principle derived its initial force from the sense of difference of race as indicated by difference of colour, and its great subsequent development has been due to a series of fictions by which differences of occupation, differences of religion, changes of *habitat*, trifling divergencies from the established standard of custom, have been assumed to denote corresponding differences of blood and have thus given rise to the formation of an endless variety of endogamous groups. As an illustration of some of the processes to which I refer, I may be permitted to analyse very briefly the internal structure of the Bagdi caste of Western Bengal.

The Bagdi have a nasal index of 80.5, and a cephalic index of 76.3. Their facial angle is 64.9. They stand at the bottom of the Hindu social system, and no member of the upper or middle classes can take water from their hands. Their exogamous subdivisions are partly totemistic, and partly eponymous, the latter groups having been borrowed from the low Brahmans who minister to their spiritual necessities as an outward and visible sign of their enrolment in the Hindu system. In the district of Bankura, where the original structure of the caste seems to have been singularly well-preserved, we find the Bagdis divided into the following endogamous sub-castes: (1) Tentulia, called after the tent which they use; (2) Kasa-kulia, named from the Kasa, a kind of basket made of reeds, and also prepare the same kind of baskets; (3) Chakr-talaver and arera-kul chawel agdis carry sub-castes.

earn their livelihood by fishing, making gunny bags, weaving cotton, and preparing the red powder (*abir*) used in the Holi festival. The Bagdi fisherman uses the ordinary circular cast-net, but swings the net round his head before casting it, a practice which is supposed by the regular fishing castes of Bengal—Tiyar, Mál and Kaibarita—to be peculiarly dishonourable. Of the other sub-castes—there are nine in all—the Máchhuá and Mallametiá derive their name from fishing; the Kusmetia are called after the *Kusa* grass; the Ojha are, or are supposed to have been, the priests of the tribe. Among the Bagdis of Orissa the grotesque tale is told how, once upon a time, the gods being assembled in council, a goddess suddenly gave birth to three sons, and feeling embarrassed by the situation, hid the first under a heap of tamarind (*tentul*) pods, the second in an iron pan, and the third under a hermit's staff. From these vicissitudes of their infancy the children got the names which the sub-castes descended from them still bear. To us this apparently foolish story is of interest as marking the transition from the tribe to the caste. It can only have arisen when the Bagdis had in some measure cast in their lot with Hinduism, and had begun to feel the want of a mythical pedigree of the orthodox type. The mention of the tamarind pods in particular furnishes an excellent example of a myth devised for the purpose of giving a respectable explanation of the totemistic name Tentulia.

Within the sub-castes again are a number of exogamous sections, among which may be mentioned *Kásbak*, the heron; *Ponkrishi*, the jungle cock; *Salrishi*, or *Sálmáhh*, the *sál* fish; *Pátrishi*, the bean; and *Kachehap*, the tortoise. The totem is taboo to the members of the section—that is to say, a *Kásbak* Bagdi may not kill or eat a heron; a *Pátrishi*, like the Pythagoreans according to Lucian, may not touch a bean.

It is difficult for the average European to realise the gulf which separates the Bagdis and the platyrrhine group below them from the higher castes of the Hindu system. In some districts these outcast races are even excluded from the village schools, and everywhere they are looked upon as belonging to a different family of mankind.

In conclusion, I will state briefly what appear to be the most important results which the recent inquiries tend to bring out:—

I. They show that India is a peculiarly favourable field for anthropometric researches. The caste system, by prohibiting marriage outside the caste group, practically eliminates the element of *métissage* or crossing, which Topinard, Collignon, and other observers notice as confusing and impeding anthropometric observations in Europe. In other respects also India has great

advantages. The number of subjects available is virtually unlimited; and observations can be repeated and tested *ad libitum*.

The wilder races, such for instance as the Kols, are strong and numerous, and have not been affected by contact with European civilization. They are readily accessible, interpreters can be easily obtained, and the scientific inquirer, even if he know no Oriental language, would have little difficulty in pursuing inquiries on any line he might wish to follow up. I say this in the hope that members of this Society may be led to follow the prevailing fashion of making a winter tour in India. To any such enterprising ethnologist I can promise an abundant supply of fresh and interesting material.

II. Secondly, I think we may claim that the anthropometric method, and in particular the combination of that method with observations of social usage in the manner I have attempted to illustrate, promises to give us a scientific basis for Indian ethnology, and to enable us at the close of the next census to classify our results on a more or less rational system. It will be something if we can establish that the distinction between Dravidian and Kolarian races has reference solely to differences of language, and that the two groups belong to the same main stock.

III. Thirdly, the inquiry has drawn attention to the wide prevalence of totemism in India, and to the existence of several very singular modes of giving effect to the custom of exogamy.

IV. It also throws much light upon the practice of infant marriage and the rule that a widow may not take a second husband. It shows that these ordinances—the positive one that a man must get his daughter married before puberty on pain of losing caste himself, and the negative one that a widow, even if a virgin, may not marry again—are regarded almost universally as badges of social distinction. A caste which observes them is in the way of salvation and may hope to rise in the social scale; while a caste which disregards them is ranked with the *atavrhine* Dravidians. Unhappily the form of infant marriage which is gaining ground is the Bengal form, which favours consummation even before puberty, and which tends to produce pregnancy at an abnormally early age. It would seem that such a custom must in the long run lead to physical degeneration, and must enhance the prevalence of those special diseases which Lady Duff endeavours to alleviate. So also with widows. A prohibition of widow re-mar-

riage remains a monopoly of the higher castes, the number of widows—large though it may be—does not amount to a serious social evil. But an indefinite extension of the prohibition by means of the imitative process now so rapidly going is not a prospect that can be regarded with indifference.

V. Finally, I have a practical suggestion to make which I would ask the Council of this Society to take into consideration. The British Association has already urged upon the Government of India the desirability of extending anthropometric observations to Bombay, Madras, and other parts of India, and has suggested that the exogamous and endogamous groupings of all tribes and castes should be recorded in the Census of 1891. This is good, so far as it goes; but I should like to go still further, and attempt to initiate a permanent system of inquiry into custom throughout India. The system of circulating a set of questions and getting persons interested in ethnology to collect replies worked very well in Bengal, and I see no reason why it should not be extended to other parts of India. It would cost the Government next to nothing, and it offers the only prospect of ascertaining and recording a mass of interesting and instructive usage, which the spread of Brahmanism, favoured as it is by the extension of railways, is tending to obliterate. I propose then that the questions used in Bengal, which were based on those drawn up by a committee of the Anthropological Institute in 1874, should be revised by the Council with reference to Mr. Frazer's excellent series of questions and the various continental *questionnaires*, and that we should then approach the Government of India with a scheme for circulating them in India and collecting replies for the entire continent. In almost every district I believe we should find men ready to take up the work, and the data thus collected would be of the utmost value.

DISCUSSION.

Dr. G. B. LONGSTAFF enquired whether, in the case of the exogamous subdivisions described as existing in the Bagdi caste, the name of the subdivision went by the male or by the female side; whether, for example, the children of a father belonging to the heron group and a mother belonging to the tortoise group would be herons or tortoises.

Dr. LEITNER and Dr. GARSON also joined in the discussion.

Mr. RISLEY explained that in all the exogamous groups which had come to his notice in Bengal the designation of the group, whether totem, eponym, or local name, descended in the male line, so that the children of a heron man by a tortoise woman would be herons and not tortoises. Traces of female kinship exist farther east in the Cossya hills, and some survivals may perhaps be found in Bengal itself.

NOVEMBER 25TH, 1890.

Professor W. H. FLOWER, C.B., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of HENRY BLACKWELL, Esq., of Milk Street, Cheapside, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

FROM MRS. GALLENGER.—Un Viaggio a Nias. Di Elio Modigliani.

FROM A. W. FRANKS, Esq., C.B., F.R.S.—Statement of Progress and Acquisitions made in the Department of British and Mediaeval Antiquities and Ethnography of the British Museum in the year 1889.

FROM THE GOVERNMENT OF PERAK.—The Perak Government Gazette. Nos. 15-18, 20-27.

FROM THE GOVERNMENT CENTRAL MUSEUM, MADRAS.—Report for the year 1889-90.

FROM THE SECRETARY OF STATE FOR THE COLONIES.—Vocabulary of the Kiwai Language, British New Guinea.

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- Indications of Retrogression in Pre-historic Civilisation in the Thames Valley. By H. Stopes, F.G.S., F.R.Hist.Soc.
- Trade and Commerce in the Stone Age. By Sir Daniel Wilson, LL.D., F.R.S.E.
- Essai d'une classification des Races Humaines, basée uniquement sur les caractères physiques. Par M. J. Deniker.
- Étude sur la Rétroversion de la Tête du Tibia, et l'attitude humaine à l'époque quaternaire. Par L. Manouyrier.
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The following paper was read by the Author:—

The YOUROUKS of ASIA MINOR.

By THEODORE BENT, Esq., M.A.

THE study of the habits, customs, and origin of the nomad tribes of Asia Minor is an exceedingly complicated and difficult one. There is an undercurrent of secrecy and mystery about them all, an unwillingness to communicate to the passing stranger anything about themselves, their customs, and more especially their religious opinions. Outwardly, they are all Mohammedans, though in their wild nomad life they never see either a mosque or an imam. Last summer I gave the results of my enquiries into the religious tenets of the Ansairee who dwell in and around Tarsus, and the secrecy with which they enshroud their belief. Investigations amongst the Afshars, the Kizilbashí, and the Yourouks, lead me to imagine that this secret religion is not confined only to the Ansairee, but is the religion of nearly all the nomad races who wander to and fro in the mountainous districts between the Mediterranean and the Caspian.

This evening I will confine myself entirely to the Yourouks, and set before you what anthropological facts I collected whilst amongst them, and, I will here bear testimony to the value of the anthropological "Notes and Queries" which suggested most appropriate questions just at those moments of emergency when one's mind assumes a steady blank and refuses to act.

The Yourouks, who inhabit the southern coast of Asia Minor and the heights of the Taurus, are of two distinct races, of origins quite as far apart as the Greeks and the Bulgarians of the Balkan peninsula. The Turks, however, have not distinguished between them, and call them all Yourouks. The first of these are called *Takhtagee*, and principally occupy themselves in wood cutting and charcoal burning. This name is derived from the word *takht*, a plank, and refers to their occupation; they prefer, however, to be called *Allevi*, the origin of which name I do not know. These people are generally to be found in such

parts of the district as are covered with forests, which they are year by year destroying, whereas the other branch of Yourouks are strictly pastoral, and are found in their tents in open spaces, or amongst the low brushwood which is suitable as fodder for their cattle.

First of all we will speak of the Takhtagee Yourouks. (Yourouk is derived from the Turkish word *youroumek*, to wander.) We came across them chiefly in Lycia and the confines of Pamphylia. Many of them adopt a semi-sedentary life, and dwell in huts built of rough stone, with walls three or four feet high, and a round thatched roof without central support, reminding one forcibly of the round Turkoman tents, from which pattern this form of architecture is doubtless derived.

The religious ideas of the Takhtagee are decidedly peculiar and suggestive of not only the Ansairee of the Lebanon, but also of the Yezedee from the district near Mosul. Their belief in the transmigration of souls is very marked: to them the peacock is the embodiment of evil, yet it is an animal which may rise to a higher position in a future existence. This at once connects them with the Yezedee, or so-called devil worshippers, who, as Dr. Badger relates in his history of the Nestorians, worship a brass representation of a peacock, *Mdek Taoos*, or King Peacock, as they call it, in their secret assemblies, which they consider to be the god of evil, and therefore the one to be most propitiated. Like the Yezedee, the Takhtagee never use the word *Shaitan*, and shudder if anyone else makes use of that very common Turkish oath. Ali to them is the great prophet, the latest and most perfect incarnation of the deity, which connects them at once with the Ansairee of the Lebanon, and the Ali-ullah-ih of Northern Persia, by both of whom Ali is God. There are many stories in connection with the secret assemblies of the Takhtagee, but most of them, I should imagine, like those told about the Ansairee, are chiefly the calumnies of their enemies.

Unusually enough, the Takhtagee wash like the Shütes of Persia, in the wrist upwards, not like the Sonnee who wash in the same direction.

Perhaps in that respect form of religion we may be confronted with the survival of some heathen cult, perhaps it may be a degraded or delayed form of Christianity. About the Ansairee, however, stronger opinions than about the Takhtagee. I feel at present wholly unable to form any definite opinion.

race is peculiar; they have long pointed an custom amongst them tightly to bind us, whether this peculiarity is due to prepared to offer an opinion.

Pastoral Yourouk is during the

winter, when they come down to the plains near the coast with their flocks and herds. This is their *Kishla*, or winter quarters (derived from *Kish*, winter), as opposed to the *Yaela*, or summer quarters (derived from *Yas*, spring).

Most of the inhabitants of the low-lying towns and villages go up to the mountains for their *yaela* in summer, so that during this period you can never be quite sure that you have got a genuine Yourouk or not for your study. The Yourouks are a finer race than the Takhtagee, lithe of limb and seldom under six feet in height.

Some of them have adopted a semi-sedentary life for three months of the year, dwelling in hovels erected out of ancient ruins, in the tombs of the ancient Greeks, but as soon as spring comes their abodes become uninhabitable from vermin, and they betake themselves again to their tents. They are an exceedingly peaceful and law-abiding race, a great contrast to their neighbours the Afshars, Kourds, and Circassians, whose habitat is more to the east, and the Turks look upon them as the policemen of the mountains, and they are always ready to give information concerning the thefts and smuggling of the less peaceful tribes, several instances of which came under our notice.

The natural abode of the Yourouk is his black goat's-hair tent, with the camel pack-saddles built round for a wall and the family mattresses spread in the midst; his life is occupied in looking after his flocks, and according to the season he moves from one pasture to another.

Their year they divide into three seasons—namely, *Yas*, spring, five months; *Gis*, summer, four months; and winter three months, which they again subdivide into three parts. (1) *Kampsin*, fifty days; (2) *Karadeh*, black winter, ten days; and (3) one month, March, *Zembrai*, or the opening.

They are a fine, active race, insensible to fatigue and hardship, tall and strong, with open countenances, usually dark hair, but lighter complexions than most other tribes in Asia Minor. They dress in loose cotton clothes, and their women do not veil their faces. Their infants they swaddle, first binding round the child's body a rag containing earth heated with a stone; but infant mortality is enormous amongst them. Nearly every woman has had a large family, of which only two or three survive. Hence the survival of the fittest, and the healthy lives they lead contribute to the fineness of the race: they also tightly bind the infant's head, for what purpose I do not know. We found a considerable percentage of idiots amongst them, whom they treat with superstitious care; and many instances of abortion in the shape of infants without arms, a wrong number of fingers, &c. One man, from the village of Tapan,

north of Sis, had a horn like a goat's horn growing on his head. He is, I hear, coming to Europe to exhibit himself.

Diseases are uncommon amongst them, except *teletmeh*, or throat disease (to cure which they wrap the patient in the warm skins of newly-slaughtered animals), and spleen, which they treat with poultices and decoctions of mountain herbs.

Their intercourse with the outer world is very limited; often a well-to-do citizen of some town furnishes a body of Yourouks with flocks by contract; the Yourouk to provide so many okes of milk, cheese, butter, &c., whilst the tribes get what milk is over, the hair, &c., and the contractor agrees also to keep up the flock, if by chance it diminishes. This is termed "an immortal contract." In this way the Yourouks often amass flocks of their own, and in time pay off the lender. Their communication is generally done by tallics.

These nomads are very destructive to the country they travel over; lighting their fires beneath trees, they ruthlessly destroy acres of timber, and the valleys of this part of the Taurus are rich in tall, straight fir-trees used for masts; then they lay bare whole tracts of country, that they may have fodder for their flocks, and nothing is so destructive to timber as the habit they have of tapping the fir-trees near the root for the turpentine. A deep notch is cut, and the turpentine all flows to this part. After a while the tree is cut down, and the wood in the vicinity of the notch is used for torches, the only light they make use of. Again, they bark the cedars to make their beehives, and for roofing purposes, and are the most destructive enemy the forests of Asia Minor have. Luckily, the vast extent of forest, and the sparsity of inhabitants makes the destruction of timber less marked; but it is a steady destruction if slow, and must in the end ruin the forests of the country.

In his mountain wanderings the Yourouk has regular visitors at stated times. The goat and sheep merchant comes in the spring, pitches his tent in a central place, sits with the big men of the tribe around him on cushions, smokes his narghili, and has a pot of coffee boiling in the embers, and buys from those who are willing to sell. When he has amassed as many as he can conveniently manage, he sets off to the nearest town to realize a large profit.

They are great camel-breeders, and produce the valuable sort of male camel, common to Asia Minor and known as the Toulou camel, a cross between the Bactrian and the Syrian; and in spring large Bactrian stallions are brought round amongst the encampments. The cross produces a camel excellent for mountain travel, and impervious to the snows of the plains.

Then the tax collector comes to gather in the Ashr, or tax on their cattle; he also pitches his tent, and is surrounded by the leading men, but as often as not he has a lot of trouble, for when they are advised of his advent the Yourouks hide a portion of their flocks in out-of-the-way caves to avoid the tax. Then comes the travelling tinker to mend their copper pots—the great importer of external gossip amongst them; he settles for a few days at each place where he finds ten or more tents, with his bellows and his assistant, and mends with nitre the quaint-shaped coffee-pots and household copper utensils which they use, in return for which he gets butter and cheese, and with these he returns to the town as soon as he has got together as much as his mule can carry. Visits are also periodically expected from the wool merchants, skin dealers, and the public circumciser, who initiates the young Yourouks into the first mysteries of the Mohammedan faith.

In food the Yourouks are exceedingly frugal—their bread in times of plenty is made of flour, in times of famine of acorns; it is of the oatcake type, and baked with great dexterity by women on copper platters over a few embers—cakes with vegetable inside, milk, cheese, and very rarely meat, and no wine. Coffee, however, is essential to them, and often I have wondered what these nomads, so unchanged in everything else, did before coffee was made known, until one day when coffee ran short an excellent substitute was provided for us, made of the seeds of a fine species of thistle, botanically termed *Gundelia Tournesfortia*, for it was discovered by Gundelscheimer and Tournesfort, who calls it the “finest plant in the whole Levant,” though he apparently was not aware of its use. It grows in dry stony places all over the southern slopes of the Taurus, and is, I understand, very plentiful in Afghanistan. The coffee produced by it is a little lighter in colour, but more aromatic and bitter than ours; they use it also as a stomachic.

By boiling the cones of the *Juniperus drupacea* in a large cauldron for a long time, a thick sweet stuff is produced; this they mix with flour, and the result is not unlike chocolate cream, and they call it *pelteh*.

In producing material from the mountain herbs the Yourouks are very cunning. Before aniline dyes were invented they drove a good trade in colours, but now it does not pay them to continue making them, and European dyes are used by their women in making the Karamanian carpets. The milk of a spurge, called *Galaxhidi* by the Greeks, is boiled with onion leaves. When the wool is put in, the colour does not at first appear until it is inged into cold water, when a brilliant red is the result. From the gall of the *Quercus infectaria* they make another dye—in

fact, their mountains are covered with herbs useful for all kinds of purposes.

The Yourouk will do anything for tobacco. When it is not forthcoming they make use of certain leaves known to them, and even are known at times to use smoke-dried fig-leaves.

The Yourouks are an exceedingly polygamous race. Poor though he is, a man will often have seven wives, or more properly speaking, seven slaves. Each wife generally occupies a different tent; one minds one portion of the flock in one part, another in another direction, another wife looks after the camels, another stays at home to weave carpets, another collects wood and fetches water; and he must be a very poor man indeed who cannot boast of at least three wives. The natural result of this is that the female population, though in excess of the male, is not enough to meet the demand, so that much is done in the way of woman stealing, and if report speaks truly, a Yourouk who wants a wife is not particular in appropriating a married woman from another tribe.

On marriage the husband generally pays something to the father, and this has given rise to the idea that the nomads are in the habit of selling their wives for the harems of Constantinople, whereas they are only carrying out their legitimate idea of the marriage contract. The Yourouks are, strictly speaking, endogamists as far as they can manage it, only going outside when necessity obliges them. In this they are a marked contrast to their neighbours the Circassians, who generally seek a wife from a remote settlement. The Circassians also pay something down for a wife: the *kalim* or price is fixed in *baits* or mares, their ordinary scale of measurement, 1 camel=5 mares, 20 sheep=1 mare, &c. At a betrothal the Yourouks kill a lamb, play the tambourine, let off guns, &c., and exchange handkerchiefs; nothing else. The marriage is a little gayer, dancing and feasting for three or four days, but the ceremony so often repeated seems to lose its zest.

The Turkish Government is anxious to get the Yourouks to settle in some of the more favourable localities on the southern slopes of the Taurus, where a few of the wretched hovels have been erected, but the Yourouks resent the idea, and doggedly refuse to have a mosque or a Hodja. We saw several attempts to thus bind them, but they resent the idea and the mosque falls into ruins. Their religion is a truly pastoral one, and impregnated with much secrecy though amongst them we never saw traces, as with the Takhtagees, of the Ali worship. They are, however, quite distinct from the Mohammedans, for they weep over a corpse, deck it with flowers, and give wine at bridal festivities. Sacred trees by the side of the pathways are hung with rags (to

cure fevers) wooden spoons, &c. ; and there is a little pile of stones hard by which passers-by add to, and when a Yourouk dies they bring his body to one of these open-air temples, read a little over it from the Koran, and take a few of the small stones to put over his lonely grave. They prefer to bury near a path so that the passer-by may say a prayer, and this has given rise to the erroneous belief that their cemeteries are those of villages which have disappeared. This tree worship amongst them is highly interesting ; like the sacred groves of Hellenic and biblical folklore, each sacred tree has its spirit and is never cut down for fear of driving away the genius loci, and the transference of evil to trees has its parallel in the East Indian Islands, where epilepsy is transferred to trees by striking the patient with the branches.

Their superstitions are few ; they have their Piri, who inhabit streams, and houses and cliffs like all savage races, but they believe in nothing that harms them, and have no special dread of ruins. In the mountains where rain-water has settled they say that if a wild animal—an ibex or a bear—has drunk there, if a man from civilisation drinks after it he will become wild like they are, and this is how they became Yourouks. Where the Yourouk is sedentary and produces crops his tools are of the most primitive nature, the threshing machine of pine wood, set with flint stones at the bottom fixed along the grain of the wood, cf. Isaiah xli, 15 : "The new sharp threshing instrument having teeth." On this the man sits and is dragged by bullocks round and round. Their spade is the old Roman bipalium, and their sheep are the fat-tailed ones such as Herodotus described as being "one cubit in width" (Herod. iii, § 113), and such as one sees on the bas-reliefs of Persepolis. Their churns are skins hung on three sticks, and stirred with a dasher. Wooden utensils are the most generally in use, a wooden mortar for pounding coffee, wooden dishes, bowls, &c. ; but then each tent has its heirlooms of copper utensils, which are mended with great care and handed down for generations.

The Yourouks are believers in magic and have prophets among them, who look in water, open books, and from the grain of wood can tell who has stolen a goat and where it is. The evil eye, too, they strongly believe in, and the efficacy of an onion hung up in the tent to keep it off. Their games are mostly rough, and consist of wrestling and feats of strength.

Yourouk women often mark their heads with the sign of the cross, having seen Christian women doing so, and believe it brings good luck.

So that each family may know its own cattle they cut the ears of goats, camels, and cows with different marks, and some of them have a very grotesque effect.

It is difficult to obtain from their tradition any idea of the origin of the Yourouk. They will always tell you that they are the descendants of those who inhabited the ruins amongst which they now dwell, and that their kind ancestors put up letters on the walls to inform them concerning treasure they had concealed. I have seen a Yourouk hard at work with a chisel making his way into a column in which he is sure gold is hidden. I have seen them dig holes below Greek inscriptions with the same object in view.

Each tribe has its Agha, or chief, who is held responsible by the government for the good conduct of the tribe. Practically he is their legislator, and settles all disputes, for a Yourouk never thinks of taking his grievances before the Turkish law courts.

The advent of the Yourouks into Asia Minor and their origin is lost in obscurity. Bertrandon de la Broquière tells us how two waves of them spread over Asia Minor in the fifteenth century, the first settling in the towns and blending with the Turks, the second preferring to keep up the nomad habits of their forefathers. The great number of Persian words in the dialect of Turkish that they speak—words never used by other Turks, such as *beruh*, "be off," *shuma* for "you," "pool" for money, &c.—stamps them as originally having used that language and coming from the Persian Mountains. In features and colour they are more akin to the Kurds than the Persians or the Armenians. Their skin is fairer, and their cast of countenance would argue that they are of northern origin, perhaps from the mountainous district east of the Caspian.

DISCUSSION.

Mr. WALHOUSE made some remarks regarding the aversion from the peacock, spoken of by Mr. Bent, as held by the tribes described by him. Mr. Walhouse asked whether the peacock is found in a wild state in the countries north of the Black Sea, as he had supposed the *habitat* of the peacock did not extend west of India. Mr. Bent, in stating that it is found in Persia, also mentioned that the turkey is included in the same condemnation of ill-omen and uncleanness. This is remarkable, as the turkey is an American bird, and can have been known only recently in those countries.

Prof. RUPERT JONES referred to the fact that a threshing-machine, set with flints, such as that described by Mr. Bent, has been brought from Aleppo, and forms part of the Christy collection in the British Museum, Bloomsbury.

The following paper was then read by the Author :—

On the WILTSHIRE CIRCLES.

By A. L. LEWIS, F.C.A.

(WITH PLATE XI.)

THE series of papers on Rude Stone Monuments which I have from time to time during the last twenty years been permitted to bring before this Institute, and the Societies which have merged in it, would seem to be incomplete without some notice of those largest and best known of all our circles, the remains of which are to be found in Wiltshire. These, however, have been so frequently planned, drawn, and described, that I shall assume that their details are known to all who care enough about the subject to read this paper, and I shall therefore restrict myself to the discussion of certain points which are in dispute, and if, in doing so, I refer very largely to two Reports presented in the years 1882 and 1883 to the Society of Antiquaries by the Rev. W. C. Lukis, it is because those reports not only embody Mr. Lukis' own views, which are always worthy of the highest consideration, but because they appear to have been semi-officially, at least, endorsed by the Society of Antiquaries, and may therefore be taken generally as the best exponents of certain opinions to which I am opposed.

ABURY.

The circles at Abury (or Avebury) take precedence of all others, both on account of their own magnitude and of that of the stones composing them. They were first noticed by Aubrey in 1648-9, at which time they were almost entire, but he, unfortunately, did not make a very accurate plan of them. Dr. Stukeley spent much time in investigating them between seventy and eighty years later, but they had, during that interval, been nearly destroyed; from the information, however, which he obtained, Dr. Stukeley decided that they had consisted of two sets of concentric circles and some other stones, surrounded by another circle (from 1,100 to 1,200 feet in diameter), which again was encircled by a broad and deep ditch, outside which was an embankment large enough for a railway; and that there were also two avenues of stones, each a mile or so long, one leading in a south-easterly direction to a smaller circle on Overton Hill, and the other leading in a south-easterly direction to a single stone. In this arrangement

Stukeley saw a monstrous figure of a snake, the head of which was the Overton Hill circle, while the convolutions of the body formed the Abury circles, and the stone at the end of the south-western avenue represented the tip of the tail.

Mr. Lukis, in his first report to the Society of Antiquaries ("Proc." IX, 150), takes great exception not only to Stukeley's theories but also to his statements as to facts. Thus he says of the two smaller circles: "Each, according to Stukeley, contained a concentric circle; in the centre of the northern circle there was a 'cove,' whatever that may mean, and in the centre of the southern circle a pillar; not a trace of these concentric circles is now perceptible upon the surface; of their former existence, therefore, there may be some doubt, for neither is Aubrey nor Sir R. C. Hoare responsible for them, nor for the central pillar. The Rector of Yatesbury and I procured a number of men, who carefully probed the ground with iron bars wherever Stukeley had marked fallen stones in his plan, and wherever sarsen chippings might be presumed to remain from broken stones, and with the exception of one buried stone of the supposed northern inner circle, we met with no indication of them." Of the northern inner circle, Sir R. C. Hoare's surveyor, Mr. Crocker, marked one stone as remaining in 1812, and Dean Merewether testifies to the existence of two prostrate stones in 1849, so that we have plenty of independent evidence for one if not two stones of this circle; and if the stone which Mr. Lukis found buried be not one of these stones but another, we have his own evidence for a third stone; nor does Stukeley say of the others in the northern circle that they were buried, but that they were taken up and used for building purposes. Of the southern circle, he says, some are buried under a barn and under houses, and that one is buried under the earth in a little garden, so that Mr. Lukis' failure in finding them is no evidence whatever of inaccuracy on the part of Stukeley, who, moreover, gives the dates of removal and the names of the barbarians who removed most of the stones in question. Aubrey, whose plan Mr. Lukis prefers to Stukeley's, though he does not mark any inner circle in the northern circle, does show stones scattered about inside the southern circle, which may very well have been remains of the southern inner circle, for Mr. Lukis points out with regard to the two stones at Longstone Cove, which still exist and afford an opportunity of comparison, "how unfaithful" (Aubrey's) "drawings are as to the form and position of the stones," while Sir R. C. Hoare expressly states that Aubrey, "in his rough plan, noticed the stones on that were erect, not those reclining or fallen," which is fully shown by a comparison of Aubrey's plan with Stukeley's, although Stukeley says the

people told him that the inner northern circle was nearly all standing in 1710, he does not pretend to have seen it in that condition himself, but shows the then existing stones as "fallen," except that one which was still standing in Sir R. C. Hoare's time, and apparently remained in a prostrate condition as lately as 1849. There can fortunately be no doubt about the existence in the centre of the northern circles of the three stones which Stukeley termed the "Adytum, or Cove of the Temple," for Aubrey made a special sketch of them, and two out of the three (B and C) still remain. They were arranged thus:—A | B | C, B facing to the north-east, and certainly seem to me very suitable for the inner sanctuary of such a temple as a circle or two circles of stones would form. A similar "cove" appears to have existed in the centre of the great circle at Arberlowe, in Derbyshire, which, like the Abury circles, is surrounded by a ditch and bank of considerable size. Another "cove" is to be found adjoining the large circles at Stanton Drew, of which, however, Mr. Lukis says: "The so-called 'cove' is probably a ruined cist of which the covering stone has long since disappeared;" but the height of one of the stones of this "cove" (ten feet), its thinness in proportion to its height, and the circumstances generally, make this conjecture of Mr. Lukis, in my opinion, highly improbable. The "Five Knights," near the Rollrich Circle, may also have been a similar "cove," as may "Kit's Coty House," and the "Hoar-stone" at Enstone, regarding both which the "ruined cist" idea has, I believe, been put forward, but without any evidence to support it. Where a "cove" is formed by three stones there may be some reference to that peculiar trinitarian idea which is found in so much ancient symbolism, and it may also be borne in mind that in the Aberdeenshire circles the so-called "altar-stone" is flanked by two other stones, forming a trinity, though not arranged like the "coves." On the whole, therefore, it appears to me highly probable that these "coves" were places of sacrifice, from which, however, the actual altars have been removed.

Mr. Lukis considers the south-western or Beckhampton Avenue to be the creation of Stukeley's own fertile imagination. "What," he says, "is the evidence for Stukeley's tail of the snake, i.e., his Beckhampton Avenue? Aubrey saw no such thing, nor has anyone else," and so on, at great length. Briefly stated, Mr. Lukis' objections are that, as Aubrey has not shown any such avenue, it did not exist, and that, as the small river and a quantity of marshy ground lie in its way, it could not have existed; and he thinks the stones concerning the destruction of which Dr. Stukeley obtained full particulars, were merely stray blocks naturally deposited; the two large stones which still

remain in a field near Beckhampton, and are known as the "Longstone Cove," and which Dr. Stukeley said formed a cove adjoining the avenue. Mr. Lukis thinks are the remains of a large circle entirely distinct from Abury. Of the south-eastern or Kennet Avenue, which Stukeley believed to have run in a curved line from the great circle at Abury to the smaller circles on Overton Hill, Mr. Lukis says:—"I also told you last year that I had little faith in Stukeley's notion that the monument on Overton Hill with its avenue of stones formed a part of the Kennet Avenue, and consequently a part of the Avebury monument. It was the snake theory that gave rise to this notion. I am as sceptical now as I was then, for if there be strong ground for rejecting a Beckhampton Avenue there is good reason for the non-existence of the head and neck of a snake. There was unquestionably a monument on Overton Hill, consisting of two concentric rings of stones and of a short avenue—the evidence in favour of this cannot be disputed, but I hold that it was a monument wholly distinct from that of Avebury." (*Proc. Soc. Antiq.*, June, 1883.)

I myself have never adopted Stukeley's snake theory, for, even assuming his plan to be correct, I could see no great resemblance to a serpent, nor could I ever see anything very suggestive of a serpent in the arrangement of our other circles. The two stones called the "Longstone Cove," or "Devils Coits," are also much too far apart to have formed such a cove as that in the centre of the northern circle at Abury, or in the other places which I have mentioned, and I readily accept Mr. Lukis' suggestion that they were part of a circle, both on account of the position of the stones themselves, and because, if it were so, this circle, with the great circle at Abury, and the smaller one on Overton Hill, would have formed a group of three circles comparable with the three circles at Stanton Drew, the three called the "Hurlers," in Cornwall, and the three in Cumberland, of which one only (the "Long Meg" circle) now remains, and we should thus bring this magnificent group of circles into closer connection with the similar though smaller remains in other parts of the country. Having no prepossession in favour of the snake theory, the question whether the Kennet Avenue consisted of two avenues meeting at a right angle, as figured by Aubrey, or one curved avenue, as figured by Stukeley, is one which I can consider with the utmost impartiality, but the direction of the roads leads me to think that Stukeley was right. The roads from Marlborough to Abury and Calne doubtless follow tracks of very recent antiquity, and these tracks struck the Avenue close by the Overton Hill circle, which was a good land mark; the avenue until its curve toward

Abury took those who wanted to go westward out of their way, and they then turned off at an angle, leaving those who wanted to go to Abury to follow the avenue which the present road to the village practically does, though its junction with the main road has been diverted by buildings, &c. That the avenue took the curve that the main road now takes between the site of the Overton Hill circle and the beginning of the road to Abury is shown by four prostrate stones under the hedge in the meadow on the south side of the curve. If Aubrey really found an angle in the avenue it must have been an obtuse and not a right angle, for a right angle could not be planned on the site; but as he has placed the river on the wrong side of Silbury Hill, it is evident that he was not so exact in this part of his plan as he was about the bank and vallum of the great circle, where he certainly came nearer the truth than Stukeley did.

Mr. Lukis' objections to the Beckhampton Avenue are that it must have led across the river and over impassable ground, and that Aubrey does not mention it. At Stanton Drew two of the circles have short avenues which go from them towards the river (much larger than the Kennet), which flows close by, and at Mount Murray, in the Isle of Man, there is also a small circle with a curved avenue leading to it across decidedly marshy ground, so that it is in no way improbable that an avenue formerly existed leading from the Abury circle to one bank of the Kennet, and that a similar avenue led from the Longstone Cove circle (if circle it were) to the other bank. If the circles were places of worship or sacrifice, such avenues connecting them with a running stream may have had a special object or meaning. The objection that Aubrey does not mention any remains of a second avenue is a more serious, but not a fatal one. A much more careful observer than Aubrey showed himself to be once denied the existence of a large stone which I was afterwards able to show him *in situ*, and quite as obvious as any of the Beckhampton avenue stones would have been. Stukeley's statements about the stones of the avenue leading from the great circle towards the river are very precise, and it appears from them that some remained *in situ* in his time, though prostrate, while the dates of the destruction of others were perfectly well-known; a great quantity of stone has also been used in this direction in making causeways, &c., which makes it probable that some ancient monumental construction formerly stood on the spot. Mr. Lukis would have us believe that these stones were merely stones lying casually about without any arrangement, but Stukeley says: "Reuben Horsal remembers three standing in the pasture," and again, "Mr. Alexander told me he remembered several

stones standing by the parting of the roads under Beckhampton, demolished by Richard Fowler"; and I need hardly point out that a number of stones could hardly have come into a standing position accidentally, whatever might be the case with prostrate stones. If, as I imagine, the stones Mr. Alexander told Stukeley of were south of the Longstone Cove (or circle), they were probably the remains of a second avenue belonging to it. As in the case of the Kennet avenue the present arrangement of the roads affords much reason for believing in the former existence of the Beckhampton avenue, for there is a straight and good, but desolate road, eight miles long, from Devizes to the Calne road at Beckhampton, and thence to Abury; and although the section from Beckhampton to Abury does not now follow the line of the avenue, there are indications that it formerly did so, and that the road from Devizes led up to the beginning of the avenue. While then we need not adopt Stukeley's snake theory, we are not, in my opinion, justified in rejecting all the information which he picked up during a series of years from those inhabitants who had known the stones and had assisted in their destruction.

WINTERBOURNE BASSETT.

There was formerly a circle, about four miles north from Abury, in the parish of Winterbourne Bassett. Stukeley described it as a "double circle, concentric, sixty cubits diameter, the two circles near one another, so that one may walk between west of it is a single broad, flat, and high stone standing by itself." In Sir R. C. Hoare's time it consisted "only of a few inconsiderable stones." Mr. Lukis says of it: "Not one stone is now standing and only six are visible, and one or two of these are barely above ground. By probing we found eleven buried stones, which we uncovered. Some of them appear to be very near to their original places in the circles, and others have been displaced. Stukeley's 60 cubits diameter (110 feet according to his measure of a cubit) is clearly an error for radius, for the diameter of the outer circle is about 240 feet and that of the inner 165 feet. The stones are small, and the monument can only have been imposing by reason of its large size. A prostrate stone occupies the centre of the circles, and in this respect we are reminded of two Cornish circles, which have a like feature. It is possible, but scarcely probable, that this stone belonged to the inner circle left here in course of removal, and yet, if it was in the centre when Stukeley visited the monument, it is strange that he did not see it. It is possible that he did not see it for

keblas and coves. The menhir west of the circle and the barrow northward have disappeared, but in the same field with the circles, and at a distance of 253 feet from the centre of them, in a direction S.S.E., is a large stone lying upon the ground, nine feet long, seven feet wide, and at a distance of 351 E.N.E. feet from the centre, are two fallen stones much buried. These three stones are not alluded to by Stukeley and Hoare." I have visited the site of this circle; but have nothing to add to Mr. Lukis' description, and am glad to have his authority for an outlying stone to the east north-east of it, the significance of which will be referred to further on.

STONEHENGE.

I now propose to consider a few points connected with Stonehenge, and, to save needless repetition, I shall assume that its general arrangement is fully known to my readers.

Respecting the so-called "altar-stone," I would suggest, firstly, that though probably not an altar itself, it may have served as a base for an altar; and, secondly, that the little bluestone impost, the use of which no one has yet found out, may possibly have stood on two small stones on this base, and formed or represented an altar. Aubrey was told by the Earl of Pembroke that an altar-stone was found in the middle of the area and carried away, but Mr. Petrie points out that there is "no such stone in Inigo Jones' plan, nor is there any hole or sharp sinking of the earth in the middle of the area such as would be left by abstracting a large stone sunken in the ground."

Another great question is as to the relative age of the respective circles at Stonehenge. My own idea of the natural sequence of things is that, if there were any difference in their age, the bluestone circles were the first on the ground, with the "Friar's Heel" as an outlying stone to the north-east, and that the sarsen stones, so unique in their manner of arrangement and fixing, were later, and were perhaps added in post-Roman times, and possibly, as stated by old chroniclers, to commemorate the massacre of the Britons by the Saxons. Mr. Petrie considers that the position of the centres of the various circles tends to show the sarsen circles to be the oldest, but the outer bluestones, if there first, must have been moved to enable the inner trilithons to be erected, and must have been put back as best they could be, so that an irregularity in their centring is not surprising. If such additions to and re-arrangements of an older monument were made in post-Roman times, it is also possible that the "Friar's Heel" might have been moved

at the same time to the point where the midsummer sun rose then, so that too much reliance must not be placed upon any evidence as to the original date of the monument founded upon the present position of the "Friar's Heel" with regard to the rising midsummer sun.

Mr. Lukis considers the "Friar's Heel" to be merely "a sepulchral monolith erected upon consecrated ground, perhaps long after the purpose for which the circles were designed had been discontinued," his only assigned reason being that the "Friar's Heel" is not shaped with a tool, and that all the stones of the circle are so shaped; and with regard to the prostrate stone which lies between the "Friar's Heel" and the circles, he says, "the late Mr. Cunnington, who was Sir R. C. Hoare's archæological coadjutor, proved, as he wrote in 1803, that this stone stood erect on the spot, by finding the excavation which it originally occupied, and accordingly his son, Mr. W. Cunnington, F.G.S., has remarked that, if this be the case, it must have entirely concealed the 'Friar's Heel' from persons standing in front of the western trilithon, or exact centre of the building, and that it would have been impossible to see the sun rise over the supposed 'gnomon' at the summer solstice; this fact, which can scarcely be disputed, serves to dispose of the 'grand orrery' theory." Now, as I have never on the one hand supported Dr. Stukeley's serpent theory regarding Abury, so, on the other hand, I have never believed in what may properly be called the "grand orrery" theory respecting Stonehenge, but have always thought that no one would be more astonished at the various astronomical coincidences found in it than the people themselves who arranged the placing of the stones. I do, however, most strongly maintain what may be called the "rising sun" theory. Mr. Petrie does not think that the stone now prostrate at the edge of the ditch did stand upright, but if it did, it would simply take the function now assigned to the "Friar's Heel," and the north-easterly reference would remain as before. Mr. Lukis also thinks that the "Friar's Heel" is much more recent than the other stones, because it is not worked, but most people would regard this as an evidence of greater age; it may indeed have been left unworked on account of greater veneration due to its position and function. If, however, these two stones had never existed the whole monument would still appear to be especially designed with reference to the north-east, but it is not at all certain that the original design of the monument was to have the stones formed part of the original design. It is certain that the fact that the stones are arranged in a line as the King's Stone is King's Stone.

Stonehenge has in the "Friar's Heel," while, in other circles, there is a similar reference to the north-east, either by outlying stones or adjoining circles, or prominent hill-tops. To give full particulars upon these points would be to repeat the substance of a number of papers already published in our Journal, but in a paper on circles in Cumberland, printed in the Journal in May, 1886, I stated that out of twenty-one circles visited in South Britain eighteen had a special reference to the north-east, the next most distinguished quarter being the south-east (in nine cases only). I may now say nineteen circles out of the twenty-one have the north-easterly reference as Warne in his "*Ancient Dorset*" (p. 117) says of the "Nine Stones" at Winterbourne Abbas: "A tenth stone which the eye detects just peeping through the long grass on the north-east side." I did not see this stone, as the circle is enclosed in a plantation, which I was not permitted to enter, so I tabulated that circle as having no reference towards any direction, but I can now, on Warne's authority, put it on the same footing as the others. The circle at Winterbourne Bassett may also be added to the list on the authority of Mr. Lukis.

What these arrangements can point to except sun worship in some form or other no one has yet been able to suggest, but I must observe that the variation in the direction in which the outlying stones, &c., stand in regard to the circles is very considerable, so that the arrangement was probably rather conventional in many cases.

Mr. Lukis, however, raises—not for the first time—another objection to the use of circles as temples. Speaking of the Stanton Drew circles, he says: "Circles situated as these are in close proximity are difficult of explanation, and the difficulty is the greater when their dimensions are so unequal." "It is possible that some may have been places for religious gatherings of the people, but as we are at present wholly ignorant of the people who erected them, and of their religious beliefs, we are not likely to make much progress in this direction for some time to come." "Clusters of circles without avenues are found elsewhere, *e.g.*, those at the foot of Sittaford Tor on Dartmoor, and at Tregaseal and the Hurlers in Cornwall; of the use of these groups it is not easy to form an opinion. If they were temples why should the worshippers have been gathered into separate congregations? It seems to me that this grouping must be fatal to the temple theory." Against this objection we have not only the analogy of different temples in close proximity for different seasons, or gods, or purposes in pagan religions, and the existence of numerous chapels grouped together under one roof in Christian cathedrals and on the fact stated

by Colonel Forbes Leslie ("Early Races of Scotland," p. 214), that "several stone circles close together, even intersecting each other, and lately erected to the same object of worship, viz., to Vital, may any day be seen in secluded rocky places near towns and villages of the Dekhan in India. Near Poonah they are extremely common." I venture to submit that this is a case in which the old saying, "an ounce of practice is worth a ton of theory," holds good if it can possibly hold good anywhere.

In conclusion, I will simply say that while burials were undoubtedly made in some circles they did not take place in all. None have as yet been found, I believe, within the great circle at Abury, though plenty have been found round about it. This shows that interment was at the most a secondary object; the primary object I believe to have been that of worship or sacrifice.

Explanation of Plate XI.

Fig. 1. Sketch Plan of Stonehenge.

- A. Trench round circles (diameter 300 feet).
- B. Circles (represented here as completely restored, though it is doubtful whether they were ever actually completed).
- C. "Friar's Heel."
- D. Flat stone on edge of trench.
- E. Stone called the "Altar Stone."

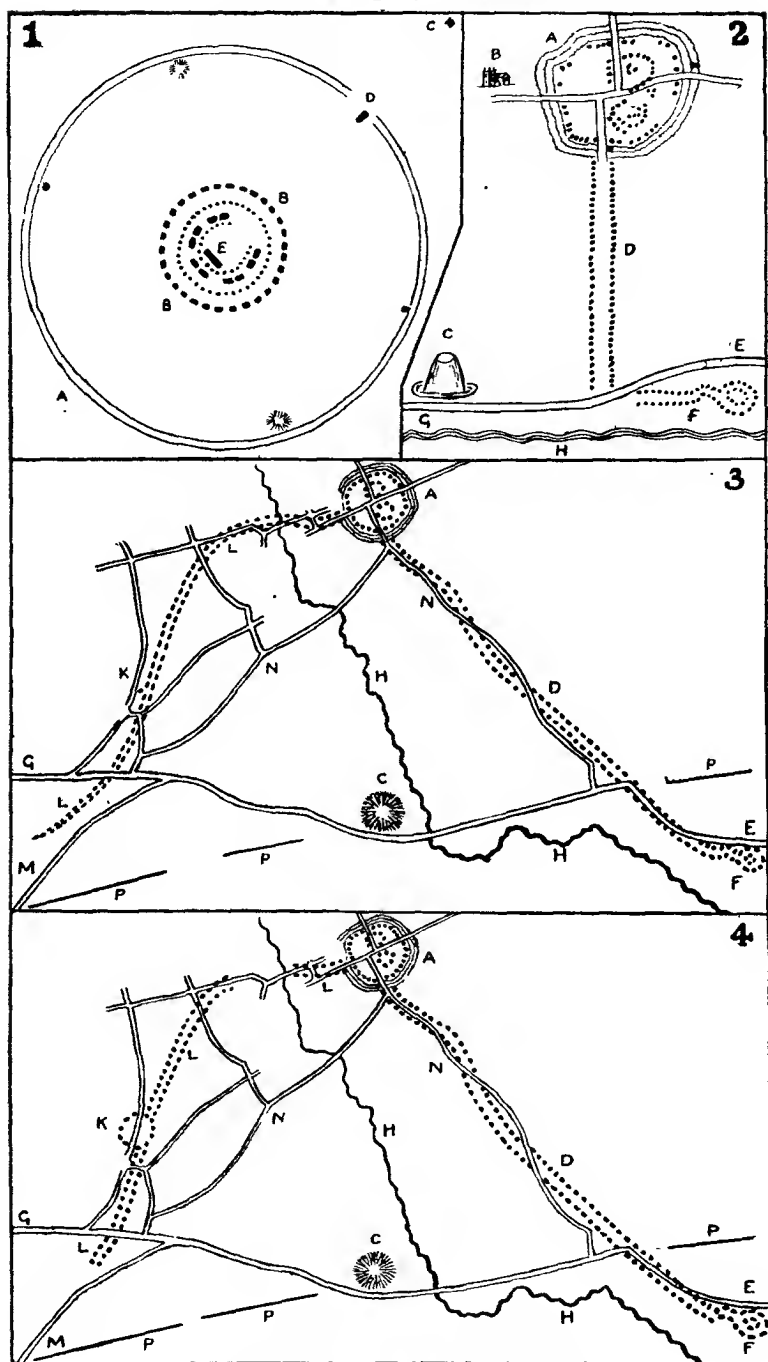
Fig. 2. Plan of Abury, according to Aubrey (about 1663).

Fig. 3. Plan of Abury, according to Stukeley (about 1722).

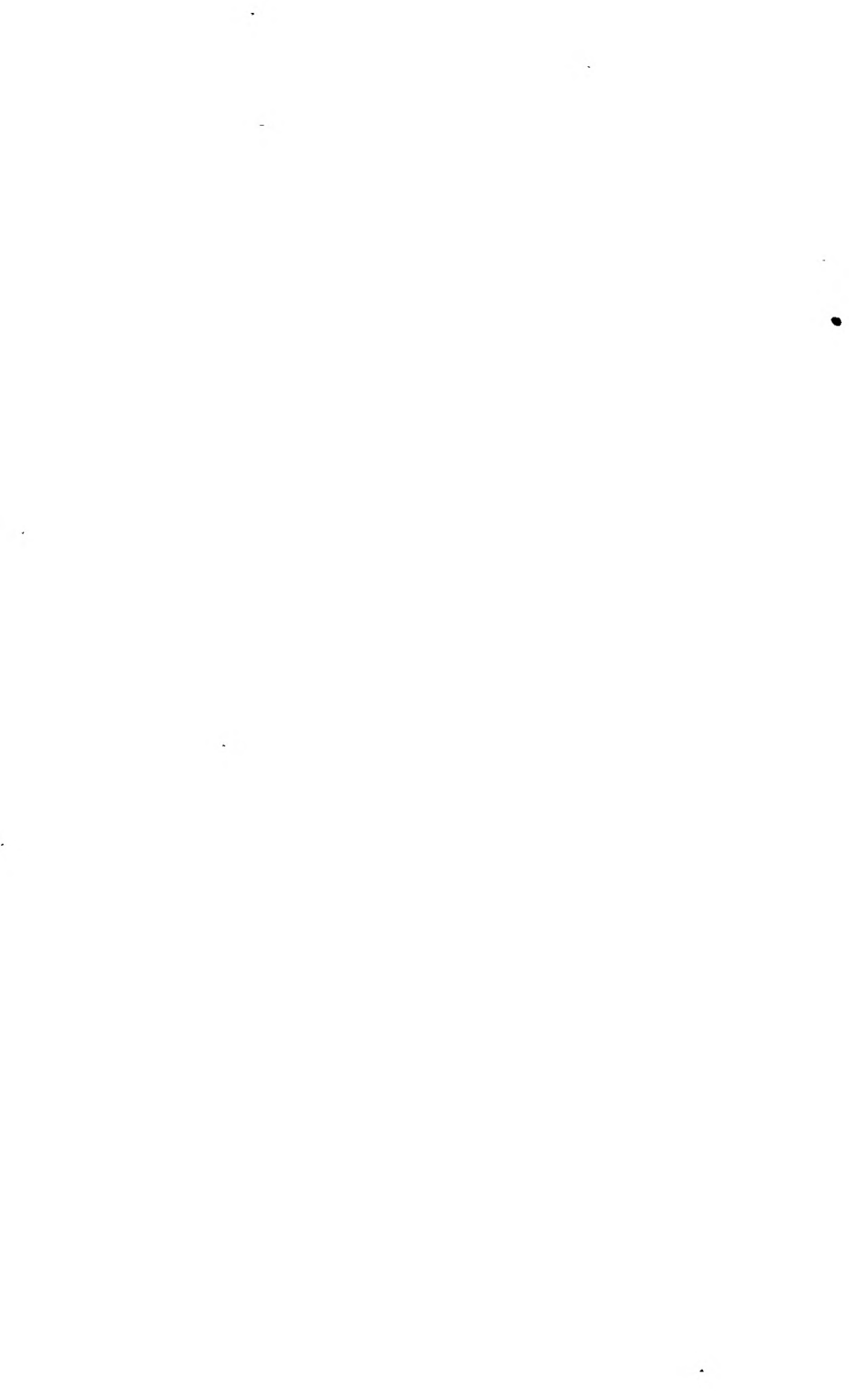
Fig. 4. Plan of Abury, restoration suggested by the author.

- A. Great Circle with inner circles, bank, and trench.
- B. Church.
- C. Silbury Hill.
- D. Kennet Avenue (several stones still remaining).
- E. Road to Marlborough.
- F. Overton Hill Circle and Avenue (entirely destroyed).
- G. Road to Calne.
- H. River Kennet.
- I. "Longstone Cove" (two stones remaining).
- J. Beckhampton Avenue (entirely destroyed).
- K. Road to Devizes.
- L. Road to Abury.
- M. Road to Marlborough.

shown in Sir R. C. Hoare's



PLANS OF STONEHENGE AND ABURY.



The top edge of numbers 1, 3, and 4 is true north, but the top edge of number 2 is about magnetic north.

Numbers 3 and 4 each represent about two square miles of country, and the stones are consequently much magnified in size and diminished in number. The smallness of the scale has also compelled the omission of the cove and inner circle within the northern circle, and the single stone and inner circle within the southern circle, inside the large circle at Abury; but in these points the author's restoration would follow Stukeley, the only difference being with regard to the Beckhampton Avenue and Longstone Cove.

The diameter of the outer circle of stones at Stonehenge is 100 feet, of that at Abury, 1,100 to 1,200 feet.

DISCUSSION.

Prof. T. RUPERT JONES expressed his pleasure at Mr. Lewis's paper showing a strong reaction in favour of Stukeley's veracity as to the actual position and state of the stones of Avebury, as described by that much-discredited old author from his own observation and carefully collected information. The speaker further remarked that he long ago formed an opinion that Stonehenge, as a temple dedicated to the sun, passed through gradations of change and partial reconstruction, such as are now known as "church-restoration," to meet modifications of the cult and successive fashions of architectural arrangement, as far as the means at hand allowed.

Mr. R. B. HOLT called attention to *Hermes Britannicus*, by the late Rev. W. L. Bowles, Canon Residentiary of Sarum. That author thought that Stonehenge and Abury were the national temples of two distinct races, the first being dedicated to the Sun, the second to the Moon. He would be glad to know if the author of the paper agreed with Canon Bowles.

Mr. E. V. HOLMES remarked that there was one important peculiarity in the position of Avebury: "The two most important of the Cumberland stone circles, that at Keswick and Long Meg and her Daughters in the Eden Valley district, stood like Stonehenge, not on the highest ground in their neighbourhood, yet on open upland plateaux. Avebury, on the other hand, lies low in the valley of the River Kennet, surrounded by higher ground on all sides, while the huge mound of Silbury occupies a similar position less than a mile lower down the valley. This seems clearly to point to a difference of purpose on the part of the constructors of Avebury. If Stonehenge and the Cumberland circles mentioned were connected (for example) with sun-worship, then Avebury probably became a sacred place in connection with river-worship, either on account of the occasional outflow of a bourne close by, or for some other reason."

The CHAIRMAN and Miss BUCKLAND also joined in the discussion. Mr. LEWIS, in reply to Mr. Holt and Mr. Holmes, said that, inasmuch as the Abury circles were surrounded by a high embankment, a stone outside them would have been useless in connection with the sunrise, but the opening of the "cove" in the centre of the northern inner circle faced towards the north-east, so that the central stone of the three which formed this "cove," or as it might be called "holy of holies," and which happily still existed, faced the rising midsummer sun and received its earliest rays. At the Arberlowe circle, where a bank like that at Abury exists, the remains of a "cove" also exist in the centre of the circle. The northern circle of Abury therefore, appeared to have been devoted to sun-worship, but other parts of it might also have been devoted to river-worship (the Beckhampton avenue, for instance) and to moon-worship, just as in large cathedrals many altars were found dedicated to as many different saints; but as he did not know what characteristic to look for as suggesting moon-worship, he could not identify it. The southern inner circle might, however, very probably have been devoted to the moon. He was much gratified by the general concurrence in his views expressed by Professor Rupert Jones and the other speakers. Mr. Petrie considered the point of observation at Stonehenge to have been behind and through the great trilithon, and not in the centre of the circle.

ANTHROPOLOGICAL MISCELLANEA.

COMPARATIVE PORTRAITS OF AN INDIVIDUAL AT DIFFERENT AGES.

As photography is probably destined to play a larger part in Anthropology than it has hitherto done, the following extract from a recent article in a photographic journal may be of interest:—

"Mr. F. Galton's idea of the comparison of photographs of the same person taken at different periods, from infancy upwards, is slightly indicated by an article with illustrations in the new *Strand Magazine* entitled, 'Portraits of Celebrities at different times of their lives.' The examples given are, however, only interesting from the point of view of that unscientific person, the 'general reader.' For instance, the comparison of a photograph of Lord Tennyson at fifty-two with a painting of the poet at the age of twenty-two tells us very little, nor can much be said about three portraits of Professor Blackie, one at the age of five from a painting, another at forty-five from a lithograph, and a third at eighty from a photograph. The series of Mr. Spurgeon's portraits is more complete, as the four examples given—at the age of twenty-one, thirty, thirty-six, and fifty-four—are all from photographs. Miss Terry's and Mr. Irving's portraits are also from photographs, and Mr. Irving's are noticeable because one of his photographs, taken when he was thirty years old, is not the least like him, save as to the hair, which appears to have taken about this time the peculiar wave with which we are all familiar. The concentrated look in the eyes and brows of Sir John Lubbock is repeated in each of the portraits given, and the extraordinary transformation which baldness and a beard have effected in Mr. Algernon Swinburne, who once had luxuriant locks and only a chin tuft, will surprise many.

"Experiments in portraiture of this kind, even when conducted on a scientific basis, must be always more or less incomplete and disappointing. When a dozen portraits taken in as many minutes show a face in a different aspect in each, not much dependence can be placed on the trustworthiness of a series taken at intervals of a year or more. Perhaps more accurate knowledge of the changes wrought by time would be obtained by photographing the features separately. A series of photographs of the mouth, for instance, extending over half a century, would be extremely curious."—*The Photographic News*, December 26th, 1890.

Anthropological Miscellanea.

ETHNOGRAPHIC RESEARCHES IN INDIA.

The following letter, dated 12th November, 1890, has been addressed by Mr. H. H. Risley, of the Bengal Civil Service, to the Secretary to the Government of Bengal, Financial Depart-

"1. With reference to the Resolution of the Government of Bengal, dated the 1st May, 1885, sanctioning certain arrangements for the prosecution of ethnographic researches in the territories subject to the Lieutenant Governor of Bengal, I have the honour to submit for the consideration of His Honour the Lieutenant Governor the outlines of a scheme for continuing similar researches in the Lower Provinces, and for extending them to other parts of

"2. It will be remembered that in 1885, and the two following years, a series of questions, based for the most part upon the heads of inquiry drawn up in 1874 by a Committee of the Anthropological Institute of Great Britain and Ireland, and framed so as to adapt to Indian conditions the methods of research sanctioned by European men of science, were circulated with the authority of the Government, and that answers were collected by a voluntary agency working under my supervision in every district of Bengal. Of the data procured by this method of inquiry, portions have been published in the *Contemporary* and the *Asiatic Quarterly*, the *Journal of the Anthropological Institute*, and the *Journal of the Ethnological Society*, and in the form of Papers read before the Association of the Anthropological Institute of Great Britain and Ireland, and the Anthropological Society of Berlin. A few out of the four volumes in which the results were compiled for the Government of Bengal, has also been published by the Board of Directors and the Board of Oriental Studies of the University of Cambridge, both of which bodies take considerable interest in the study of Indian ethnography.

Although the inquiry extended only to the Lower Provinces, and the record of the results, however complete for ordinary administrative purposes, must be regarded as incomplete from the scientific point of view, still enough has been done to demonstrate the remarkable facilities which India offers for collecting ethnographic data on a large scale, and, what is more, to furnish a basis for testing these data by repetition and comparison. The reason for this is clear. In India a highly organized administrative body, of the most modern type, carries on the work of Government in constant and close contact with the people, and the observations present examples of all stages and phases of primitive culture, and who, nevertheless, are not themselves or of parting with the people, and are not prejudiced and superstitious. This state of

things offers peculiarly favourable opportunities for the formation of a trustworthy record of primitive custom and tradition.

"4. It is unnecessary for me to lay stress upon the high — which the customary law, the social observances, the folk lore — traditions, the superstitions, ritual, and religion of the people of India possess for all students of the early history of institutions. The field is comparatively untried, but the results obtained in Bengal seem to show that it is one of remarkable richness and variety. The data already collected, imperfect as they are, throw considerable light upon the early history of marriage and the family, the various forms of the custom of exogamy, the comparative prevalence and distribution of male and female kinship, the phenomena of totemism, and the development of different stages of religious belief. It is believed that they will also tend to facilitate and cheapen the operations of the Indian census and to enhance its accuracy, that they embody valuable information concerning infant marriage and the prohibition of widow marriage, and that, by extending our knowledge of the customs and habits of the people, they will indirectly raise the general standard of administration in India.

"5. This being so, it seems to me desirable to continue in Bengal, and to initiate in other Provinces of the Indian Empire the methods of investigation which have yielded such valuable results. I believe that this may be done without incurring large expenditure, and without putting an undue strain on the regular administrative staff.

"6. The Bengal inquiries have shown that in all grades of the administration officers, both European and Native, are to be found, who take a genuine interest in the investigation of social phenomena, and who would be prepared to assist actively in collecting ethnographic data in addition to their regular official duties. All that is needed is that the work should be set on foot under the general countenance and authority of the Government, that it should be organized on a regular system, that the current expenses of postage and stationery should be met, that some clerical assistance should be given, and that the results should be published from time to time in a form somewhat resembling that already adopted in Bengal.

"7. The following are the main features of the scheme which seems to me best calculated to carry out the objects in view:—

"(a.) That unpaid Provincial Directors of Ethnographic inquiries should be appointed by the Government in each of the large Provinces of India. It is believed that several of the higher officials will be ready to undertake this work in addition to their ordinary duties.

"(b.) That each Provincial Director should be provided by the Government with a clerk to carry on correspondence and should be given an allowance for postage, stationery etc.

Anthropological Miscellanea.

- "(c.) That a series of Ethnographic questions should be drawn up, printed, and circulated by the authority of Government. I think it probable that the set of questions framed by Mr. J. G. Frazer, of Trinity College, Cambridge, would answer this purpose if modified to suit Indian conditions, and amplified with reference to the questions used in Bengal. Mr. Frazer has been good enough to offer to assist in carrying out the necessary alterations.
- "(d.) That the Provincial Directors, working through the District Officers, and the heads of departments, and in such other ways as they may find suitable, should enlist a number of correspondents in each Province, should supply them with copies of the questions and such further instructions as may be necessary, and should arrange with them the subjects to be taken up for inquiry, much in the same way as was done in Bengal.
- "(e.) That the Provincial Director, or correspondents selected by him, should from time to time draw up monographs on the Ethnography of different castes, tribes, or social groups, or on different branches of custom and folk lore.
- "(f.) That these monographs should be printed by the Government in such form as may be found convenient, and distributed to learned Societies in Europe and elsewhere in the same manner as the publications of the United States Bureau of Ethnology are now circulated.
- "8. I submit that this plan offers a reasonable prospect of collecting at comparatively small cost a mass of information of great scientific value, which would at the same time be of use to the Government of India in dealing with the large class of administrative and legislative questions which directly or indirectly affect social and religious life of the people. I would ask, with reference to the Resolution already cited, and connected correspondence, that the Lieutenant Governor may be moved to take this subject into consideration, and to submit this letter with a favorable recommendation to the Government of India."

ETHNOGRAPHIC ALBUM OF THE PACIFIC ISLANDS.

The following note

Mr. J. A. Hartington accompanied the
by himself and Mr.

stitute a
it has

still making) a collection in this country, while I have had the advantage of largely collecting from the natives themselves while on a trip through the South Pacific Islands in the years 1879-80. It is to be regretted, however, that before visiting the Islands I had not taken a special interest in this subject, as I should then have been able to collect to much better purpose, especially with regard to obtaining more accurate information on the spot.

After two years' work in the preparation of the "Album" I can see that unless a collector has such previous knowledge he is very apt to be led astray as to the localities of his various possessions. This of course fifty years ago was difficult enough, but it has become still more so since the introduction of the foreign labour trade. "Foreign goods" now find their way in large quantities both to Queensland and Fiji, and are again distributed.

Many travellers have not the advantage of being able to compare the weapons, &c., of different districts; it is therefore very often the case that they are unable to settle the localities of their various possessions until they reach home. Unfortunately many do not then take this trouble, and the things are variously labelled as coming from the places where they were obtained, and they thus pass from hand to hand and often into local museums.

Although there are many books of travel which give descriptions of the country, statistics, &c., yet there are few that deal with the natives, and still fewer with their belongings; and thus a collector has very little chance when he becomes possessed of a new "picce" of being able to ascertain whence it comes, unless he be lucky enough to be within reach of the British Museum, for in my experience that is the *only* public museum from which anything like accurate information, on this particular subject, can be obtained. I have got heartily sick of the generic terms under which museums not interested in the Ethnography of the Pacific Islands hide either their ignorance or their indifference.

I think I have said enough to show the necessity of some work on this subject which will enable collectors to obtain information. If we have in any way succeeded I am sure that both Mr. Heape and myself are well repaid, for from the first the preparing of this work has been a labour of love; the price which we have put upon it being arranged to just cover the actual money out of pocket.

We have now been working upon it for over two years, and as each sheet was put upon the stone as drawn, and the requisite number of impressions immediately struck off, any mistake made could not afterwards be rectified or further information obtained added: we have therefore embodied such corrections and additions on a sheet to be cut up and gummed on the various plates to which they refer.

It is our intention to still continue making drawings of any further specimens that may turn up and notes of fresh information, and to issue such at a later date; this, combined with the impossibility of binding such a work to suit all, has been our reason for issuing it in its present form.

Anthropological Miscellanea.

We have to thank Mr. Cuthbert Peck for his hint as to handwriting not being always clear enough to be certain of correctly conveying the right spelling of out-of-the-way names of places; we have therefore followed his advice and have had an index of places printed.

In connection with the production of this work our thanks are especially due to Mr. A. W. Franks and Mr. C. H. Read for their aid and encouragement.

OBITUARY NOTICES.

SIR R. F. BURTON, K.C.M.G.

Our Vice-President, Sir Richard Francis Burton, K.C.M.G., was born 19th March, 1821, and died at his Consulate at Trieste on 20th October, 1890. He was the eldest of the three children of Colonel Joseph N. Burton. He entered Trinity College, Oxford, in 1840, but soon got tired of University life. An appointment was obtained for him from the East India Company to the 14th regiment Bombay Native Infantry, and he joined his regiment at Gujerat in 1842. His proficiency in Hindustani led to his being appointed regimental interpreter, and his residence with his regiment in Scinde gave rise to the publication, in 1851, of his first important work, "Scinde, or the Unhappy Valley." In 1846-47 he took a six months' trip to Goa and the Blue Mountains, an account of which he also published in 1851. In addition to the work upon official reports incidental to his regimental duties, he applied himself to linguistic studies, and mastered the Persian, Gujerati, and Marathi languages. He returned to England in 1849. On 3rd April, 1853, he undertook his hazardous but successful pilgrimage to El Medinah and Meccah, the account of which, in three volumes, he published in 1855. On his return, he was selected for an even more perilous undertaking, that of proceeding to the Somali country. In November, 1854, he set out from Zeila, disguised as an Arab merchant, and reached Harrar in safety on 4th January, 1855, remaining there till the 13th. He was the first Englishman who had ever entered that famous city. He returned to Aden with a view of arranging for an expedition to the Upper Nile *via* Harrar, and landed at Berbera on 7th April at the head of a party of 42 men.

The expedition never left Berbera. On the night of the 29th April it was attacked by a crowd of Somalis, Burton and his companion, Speke, were severely wounded, and the expedition returned to Aden. In the following year he published his "First Footsteps in East Africa," and also addressed a letter to the Secretary of the Royal Geographical Society, strongly urging the importance of Berbera and the Somali coast for British interests in the Red Sea. This letter procured for him from the Government of India the appropriate reward of a severe snubbing.

He next offered himself for service in the Crimean war, and joined Beeson's Horse at the Dardanelles. He volunteered to relieve Kars, but his offer was not accepted, and he returned to

England determined to devote himself for the future to exploration.

He then undertook, with the assistance of the Government and the Royal Geographical Society, his great African expedition. Having obtained two years' leave of absence from the East India Company, he reached Zanzibar in December, 1856, accompanied by Lieut. Speke. After infinite labour and suffering, the expedition resulted in the discovery, by Burton, of Lake Tanganyika, and by Speke of Lake Victoria Nyanza. It terminated in March, 1859, and is recorded in the 29th volume of the "Journal of the Royal Geographical Society," and in Burton's work on "The Lake Region of Equatorial Africa."

In 1861 he published an account of a visit to Utah under the title of "The City of the Saints," and in the same year occurred his marriage to the lady whose admirable devotion to him we have had many opportunities of witnessing, and his appointment as Consul at Fernando Po. In the same year he explored the Cameroons mountains.

So far, we are indebted for the facts of his life to the excellent memoir in the December number of the "Proceedings of the Royal Geographical Society," but from this point our own Proceedings take it up, for he joined the Ethnological Society in 1861, when Hunt was its Honorary Secretary, and almost every principal event of his life since then has been recorded by some communication to our transactions. Burton had then just obtained a commission from the English Government to visit Dahome, and induce the ruler of that savage country to modify some of his customs.

Hunt induced him to address to the Society Chaille's explorations and adventures in Equatorial Africa. He said that Dr. Chaille had well and truly then new and curious race of which he had every page produced upon his mind the upon the east charger after a year or two in Africa.

On the 17th April, 1862, he visited the source of the Niger, and spent a day among the Fula, which he described to the Ethnological Society, and in an article in the "Review."

At the meeting of the Anthropological Society on 6th January, 1863, he took a Chair at the inaugural meeting, and was elected a Vice-President.

From 18th May to 17th

June, 1863, he visited Kana, a ruined city, and prosecuted his mission to that country. On 23rd and 26th February, 1864, a stay long of the Fula language. He gave an address to the Ethnological Society on 22nd November. Of Dahome, he said, "had been remarkable the gradual but sure advance of the disorders which ruled the country." He then read a letter to the West African

sionary Committee, acknowledging the kindness of Mr. Bernasco, their Missionary. In the same year he visited the cataracts of the Congo river. He also edited General Marcy's "Prairie Traveller."

On 23rd October, 1863, he sent to the Anthropological Society a present of two skulls from Annabom, in the West African seas.

In 1864 he contributed to the "Anthropological Review" notes on scalping and on Waitz's anthropology, and published the account in two volumes of his mission to Dahome.

On his return to England he became a frequent attendant at the meetings of the Anthropological Society. On 1st November he read a paper on certain matters connected with the Dahomans, which appears in Vol. i of its "Memoirs." It was in the discussion on this paper that he first referred to the Society as the "refuge for destitute truth."

In 1865 he was appointed Consul at Santos, Brazil, and before his departure, a farewell dinner was given to him by members of the society, Lord Stanley (now Earl of Derby) in the chair, supported by Mr. (now Lord) Arthur Russell, the late Lord Houghton, Lord Milton, and others. From Santos he sent to the Society a paper on a hermaphrodite from the Cape de Verde Islands ("Memoirs," Vol. ii), and on a kitchen midden at Santos (11th December, 1865).

At the annual meeting of the Society in 1867, Dr. Hunt, its first President, took the newly created office of Director, and Captain Burton, though absent, was elected President in his place. Dr. Hunt, however, returned to that office the following year.

In 1869, Burton published, in two volumes, his "Explorations of the Highlands of the Brazil," to which Mrs. Burton wrote a characteristic and touching preface.

After the union of the Ethnological and Anthropological Societies, he contributed to the Institute in November and December, 1871, having then become Consul at Damascus, an account of the collections made by him in the Holy Land. He then said, "the two Societies always should have been one." In March, 1872, he read a paper on the Hamath stones, now famous as the Hittite inscriptions, and the Council published his transcripts of them.

In the summer of 1872, he went to Iceland and forwarded thence for exhibition a collection of human remains and other articles, which were described by Mr. Carter Blake. He obtained promotion to the Consulate at Trieste, and thence sent a translation of the work of M. Gerber on the primordial inhabitants of Minas Geraes, the great central province of Brazil.

At the beginning of 1873, some of our members seceded and formed the London Anthropological Society. Among them was Captain Burton, who became one of its Vice-Presidents. In a letter to our then Director, he gave as his reason "the deadly shade of respectability, the trail of the slow-worm, is over them all." That Society existed for three years, at the end of which the breach was happily healed, and the Institute has remained a united body ever since. Meanwhile, Captain Burton's contributions to the science

were made to the new Society and appeared in its Journal, "Anthropologia." They comprised an account of the kitchen middens of São Paulo, Brazil, and notes on the Castellieri or prehistoric ruins of the Istrian peninsula.

In 1875 he again became a contributor to our Journal, to which he sent papers on the Long Wall of Salona, and the ruined cities of Pharia and Gelsa di Losina, in the neighbourhood of Trieste. In 1877 he sent us a collection of 50 flint flakes from Egypt, and a further paper on the Castellieri of Istria; in 1878 a paper on stones and bones from Egypt and Midian. In 1882 he was again among us, and read a paper at a special meeting held at the house of General Pitt Rivers on stone implements from the Gold Coast of West Africa. His last communication to us was made through Dr. Tylor, on 27th March, 1888, describing the two Akka boys brought to Europe by Miani.

The enumeration of his contributions to science through our own and other institutes, and of his amazing labour as an explorer does not exhaust the record of the services to mankind of the versatile and accomplished friend and colleague whose loss we have to lament. His translation of the *Lusiads* of Camoens, and his thorough if too daring version of the "Thousand and One Nights" will give him a permanent place in literature. His friend Winwood Reade wrote of him, "He is in the truest sense of the word a cosmopolitan. He is versed in the cardinal languages of Europe, skilled in all the accomplishments of a soldier and a sportsman, a good classical scholar, a profound orientalist, and has considerable knowledge of the natural sciences. With all this, he is a thorough man of the world."

That witness is true. He was too original and too independent to be a popular man in official circles, and their neglect of him not surprising.

The tardy reward of a Knight's Companionship of St. Michael and St. George was hardly justice of his distinguished services to his country, but he had already written his name so high in the annals of its great explorers that no handle was needed to distinguish it. The memory his colleagues in this Institute have of their association with him is that of a man whose personal qualities were as lovable as his genius was admirable.

E. W. BRASROOK.

MR. GEORGE HARRIS, LL.D., F.S.A.

George Harris, Hon. LL.D. (Grenville), and F.S.A., was for several years a Vice-President of the Institute. He caused to be printed, for private circulation, under the genial editorship of his friend, Dr. B. W. Richardson, F.R.S., in the year 1888, an interesting autobiography, from which we are able to glean the principal events in his life. He was born 6th May, 1809, the son of a solicitor in good practice at Rugby, and received his early education at the famous school there. Being in delicate health, and suffering from the ill-usage then common in public schools, he left Rugby in 1823, and was strangely enough entered as a midshipman in the Navy. It is hardly necessary to say that it was soon found that he was not suited for the hardships of naval life, and after some unpleasant experience at a private school in Devon, he was articulated to his father, and finally admitted into the firm as a partner. An ambition for literary success and a desire for London life possessed him, and in June, 1838, he gave up his prospects at Rugby and came to London. He shortly afterwards entered himself as a student at Trinity Hall, Cambridge. In 1839 he was appointed editor of the *Hull Times*, and became a member of the Middle Temple. An article in his paper which offended a powerful interest led to the close of his journalistic career, and he thereupon resolved earnestly to prepare for the bar. He was called in 1843, and devoted himself to law and literature for some years, bringing out his "Life of Lord Chancellor Hardwicke," a work which gained him considerable reputation, and procured him the honour of an interview with the Prince Consort, in 1847. Not finding the road to fortune in either of those pursuits, he thought of marriage. The chapter in his autobiography which tells how he turned this matter over in his mind is charmingly quaint and naive, but the result in his wooing and winning Miss Elizabeth Innes was, as far as he was concerned, to place him beyond anxiety about money matters for the rest of his life, and to assure him happiness which seems never to have been interrupted, and as far as his friends were concerned to enable him to introduce them to a most graceful and kindly hostess. In 1861 he published "Civilization considered as a Science." In 1862 he was appointed by Lord Chancellor Westbury to be Registrar of the Court of Bankruptcy in Manchester. It was while acting in this capacity that he became a Fellow of the Anthropological Society of London, and President of the Manchester Anthropological Society, of which he delivered the inaugural address on 1st November, 1866. He was elected on our Council in 1868, early in which year he retired from the public

service, and was awarded the liberal pension of £666 13s. 4d. per annum. He had bought and enlarged the ancient manor house of Iselipps, standing in beautiful grounds in the village of Northolt, Middlesex; and there he spent the rest of his days. It was a yearly gratification to him, as long as his health permitted it, to invite his anthropological and antiquarian friends to pass a summer day with him. In 1869 he read a paper before the Anthropological Society on the distinctions, mental and moral, occasioned by the difference of sex. In 1871 he was elected a Vice-President, and was among those selected to retain that position on the formation of this Institute. In 1872 and 1873 he read papers before us on "The Hereditary Transmission of Endowments and Qualities of Different Kinds"; "On the Comparative Longevity of Animals of Different Species and of Man, and the Probable Causes which mainly conduce to promote this Difference"; "On Moral Irresponsibility resulting from Insanity"; "On the Concurrent Contemporaneous Progress of Renovation and Waste in Animated Frames, and the extent to which such Operations are Controllable by Artificial Means"; and "On Theories Regarding Intellect and Instinct, with an Attempt to deduce a Satisfactory Conclusion therefrom." He joined the London Anthropological Society in November, 1873, and read a paper to them on "Tests Adapted to Determine the Truth of Supernatural Phenomena." In 1875 and 1876 he was again elected a Vice-President of the Institute. In the latter year he completed an undertaking which had been in his mind, as he tells us, from his very boyhood, that of writing "A Philosophical Treatise on the Nature and Constitution of Man." (2 vols.). The work was reviewed in our journal, and it is interesting to the writer of this memoir, who was also the writer of that review, to find that his friend (who did not know that fact), as Dr. Harris, "very fair and temperate." It is clear we did friendship to betray us into undue enthusiasm. It being of Dr. Harris's mind was towards and, thinking we did not give adequate value of anthropology, he joined the late formation of the Psychological Society. Since of him in these rooms. The weight of as to London less and less frequent, though *Modern Thought* and other periodicals for will be seen from what we have said that bly versatile mind, much varied ability, and Dr. Richardson justly speaks in high praise ing industry, good humour, and constructive remember him in this Institute as er who earned our respect by his account by his high character, and our gratitude no differences of opinion were ever allowed

DR. H. MUIRHEAD.

In Dr. Henry Muirhead, of Bushyhill, Cambuslang, near Glasgow, his friends must regret an amiable, warmhearted, and intellectual man, and this Institute a valuable supporter. He was born in 1814 in one of the suburbs of Glasgow, and was not gifted by fortune in the outset of his life, being one of those offspring of whom Scotland is so justly proud, whose ambition, energy, perseverance, self-denial, and intellectual power, enable them to triumph over the greatest external disadvantages. After prolonged effort, he was able to afford himself a full University course, and took the degree of M.D. at Glasgow in 1844. He subsequently turned his attention to the department of mental disease, was superintendent, and afterwards proprietor, of a lunatic asylum, and retired with a competent fortune to Cambuslang in 1867. There he devoted himself to the study of science, especially of metaphysics and meteorology, and, by liberal contributions of money as well as by personal effort, to the fostering of scientific progress in Glasgow. He was LL.D. of Glasgow University, *honoris causa*, President of the Philosophical Society of Glasgow, Governor of Anderson's College there, and of the West of Scotland Technical College; he was a founder of the Public Library and Working Men's Social Union at Cambuslang, and also founded, at a cost of £2,500, the demonstratorship of physiology in Glasgow University which is called by his name. There are doubtless members of the Institute present who will remember how, at the York meeting of the British Association, after Professor Flower, from the chair of Anthropology, had made an eloquent appeal on behalf of our Institute, showing how it was crippled in its publications and other work by the lack of means, Dr. Muirhead, then sitting on the platform, quietly handed over a cheque for 100 guineas to the Chairman, with the characteristic stipulation that his name should not be mentioned.

Dr. Muirhead closed his useful and blameless life on July 31st, at Cambuslang, at the ripe age of 76.

J. BEDDOR.

MISS NORTH.

Miss Marianne North, born 1830, died 1890, was the eldest daughter of Frederick North, Esq., of Bougham Hall, Norfolk, for many years M.P. for Hastings, and representative of a family eminent in English history. She was well known to the public through the unique and beautiful Museum presented by her to the Royal Gardens at Kew. She built it at her own cost, and covered its walls with her exact and gorgeous paintings of flowers of all parts of the world. The passion Miss North felt for flowers and for painting them, and her great love of travel, suggested the pursuit she followed during twenty years, with strenuous exertion. Her aim was to paint true portraits, so to speak, of all the more important flowers in the midst of their native surroundings, especially of those that are rapidly disappearing before the advance of colonization and agriculture.

In at least eight different journeys she travelled through the border lands of civilisation in North and South America, India, Australia, and the Cape, besides visiting numerous islands in search of their characteristic flowers. She succeeded admirably in her

efforts, her overtaxed strength

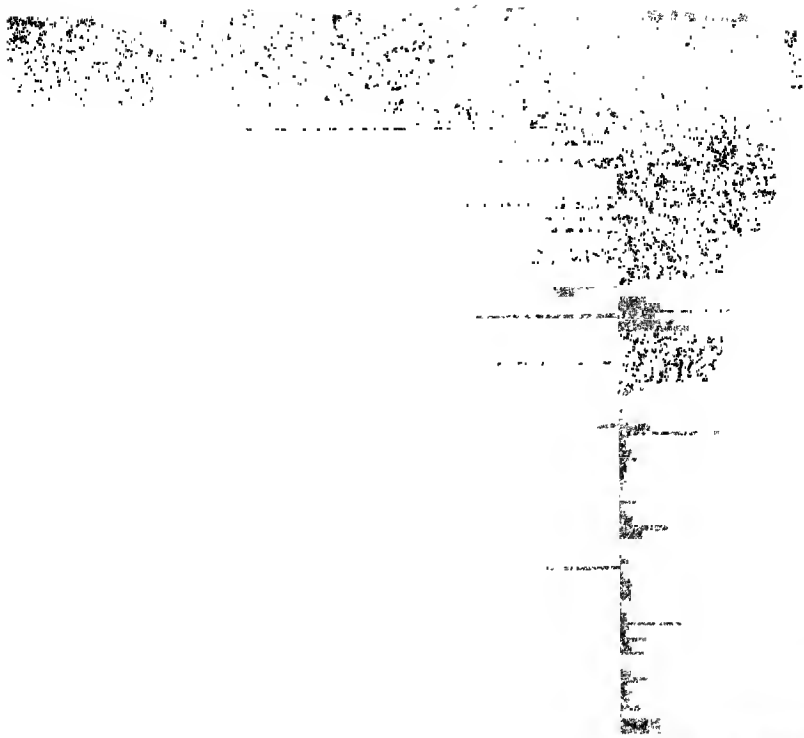
she made for herself a small garden in

at Kew, and in the garden

she made warm friend-

to her with a common sense of
in deprived, by her death, of a
re, of rare intellectual gifts and
a womanly character.

FRANCIS GALTON.



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zy, hard-earned food, and shelter on the non-existence of the positively "dead." Still less are they to manipulate in terror or in honour thereof the sense of their race. But this (under the idea of "equivalents") is just what early man is credited to, not fitfully or accidentally, but deliberately and fully.

If it may be objected, there is no doubt of the imagination of "early man" did really play him wanton fashion. Everywhere we find ghost or ap grotesque animism, fetish or totem cult and so may be urged, we are justified in accepting it, vaguely referring it, perhaps, to the human child's unaccustomed adjustments at once of the young of sub-human animals organic levels. But then the baby does to crawl on its back; it

the chief part of original trait in the ...
the Deities, "Diogenes"

teeth of influences that modify things around it"; but here we have to wonder at the fatal ease with which it is lost. The work of the senses is to relate our notions and actions rightly to our environment, and enable us so to respond to it as to accomplish the organic aim. But these senses in man are related to a specially developing brain.¹ Leaving questions of "design" on one side, we find a gradual emergence of ever higher types of activity, depending throughout on unbroken correspondence between thing and thought. We know at least that this is the secret of the optical process; it ought to be that of the "visionary," or at least of the "speculative" process.² But the metaphors of seeing often express to us, by a suggestive paradox, the most dangerous forms of blindness. Why? A physical touch goes from the skin-point to the proper nerve-ganglion and back again on another line; appropriate muscular action follows. But a touch of "emotional" experience seems to go to some "imaginative" centre at random, generally therefore setting the wrong mental muscles in motion. Where then does the imaginative message lose its way, strike the wrong line, evoke inappropriate response, and remain unable even to right itself?³

The link with nature and fact that the developing gift which we call "mind," seems at one stage to have lost, is the power to pass through appearances to reality, in the sense of ignoring illusory and detecting actual characters.⁴ The animal which is deceived by illusion or simulation is in the long run "eliminated." The animal which survives is the one that penetrates all deceptions of appearance and escapes being ensnared by them. And the same is of course true in a more mechanical sense of the plant, and below that again in a purely mechanical sense, of all

Why then did not this primordial order itself inevitably into the mental process at dancing and directing the budding repress. We have here no question of scientific or any of the subtle products which belong mental growth; no question of "knowing"

¹ See also, "The Brain," vol. II, pp. 170, 180, 200. See also La 50, "The Brain," p. 11. ² Much less than this, and the term "is of in this process." Comp. Foster, "On See also Oreston-Brown, "Hypnotic Uses o 300," Aug. 24th, 1890; Maudsley, "Theory of

vol. II, pp. 18 1, 207. See also Ladd,

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his outlook. As he has not got to make his
and secure their acceptance and persistence. It
lies in consensus and permanence. The flux
comes and goes incessantly shifting and chang-
ing matter, and no extravagance in the
use of sensation. Further, the pre-intellectual
of, smell, colour and flavour. Thus if the primi-
tive mind has ever so vivid a dream or waking illu-
sion it soon begins to fade and die out unless constantly re-
newed by sensation until then all dominant. Sight is
the most intellectual sense. The primitive man
sometimes to search for food and evade enemies and
senses by the dusk, would rely much on smell and touch.
I am sure we suppose then that this condition can be satisfie
"ghost" comes upon the scene? Let us however

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concrete inference
is chiefly such as
is by him, and
biology vol. 1

his "ghost" leaves his "body" as "breath." No doubt the concurrent departure of the "breaths" of his wife and slaves might suggest a breath-community in a breath-world of which individual puffs or sighs might make up wind. And again, the smoke-columns of the funeral pyre, as they were seen to be gradually dissipated, might well be supposed to turn into air.¹ Why then do we not find everywhere a supreme Wind-Deity,² and a swinging fetish to represent the sacred breath-rhythm,—and the heart-beat too?³

Again. Taking certain features of universal experience, as the possible source of the most conspicuous class of these vagaries, we have to distinguish the ideas of:—

- (1.) Voice and its echo.
- (2.) Object and its shadow.
- (3.) Object and its reflection.

(4.) The energy and matter, work-force and stuff of an object; its power to be useful and its tangible mass. All four contrasts are of course reflected in dream.⁴

(1.) Here we have apparent separation in space but complete reproduction in character, although in lessening intensity. Before taking the other points, which are all more or less related to sight, it may be suggested that the primitive ear, rendered acutely discriminative by the constant presence of danger, would be less liable to mistake the echo for an independent voice than the civilised one would be. It could not fail to note the invariable repetition in every detail of sounds which could be accounted for in the usual way.

(2.) Here there is complete distinctness, but the shadow has only the outline produced by obstructed light; no idea of content is given.

(3.) Here we have reproduction in the flat or in the solid; not in an artificial copy. The two are again

we can no longer separate or even distinguish.

Therefore that while it might well seem possible to the ghost the great shadow or imitation meat, the indispensable nourishment of

¹ *Notes of Primitive Superstitions*, pp. 249, 251.

² *Ibid.*, I find that Professor Max Müller ("Physical Religion" that we often do find the storm and frequently do) indicates it the wind conducts it directly with thunder, again it speaks.

³ *Ibid.* questions us to the corresponding note—words it is like many other such questions, cannot it be the

ated because it could not
it be perceptible as it
with the weapon or

of his super-sensuous
his and consulting it
and hunted while
be ghost (or even) as
left the fact after us
which the natural

realisation. But for
for more for him than
reason tends to ignore

which the increase of abstracting re-
fection from the physically concrete

it had always been associated with them and even reckoned
he same ghostly category.
At here we are confronted with the dream theory. The
ancestor has been seen in dreams, therefore the descendants
are sure that he lives somehow and somewhere, and all
rest follows. Yet surely it would sometimes strike the
molesters forcibly that it did not invariably follow that next
as they dream the chief they dreamt the slave to correspond
in the new state of things. Dreams are not new, and surely
we can have been as coherent, consistent, invariably repeated
as such an idea would require them to be. Do we find any-
thing to suggest that when a great chief died, he was dreamt
the dreamers as alone and absolute, while after his funeral
in all its attendant ceremonies of provision, he was dreamt
wounded and provided as in life? If not, would not the
who had produced or
most of effect, and who had the strongest
of presence in all the
is, so far as he was

as "Kew-speaking Peoples,"

5, p. 55. See also Taylor,

new them by themselves, while others
not understood manner. The reason
has nature of the new the first
"The World" "Mind" Dec. 18, 1891
p. 110 of the American Anthropologist
vol. 1, no. 1, 1891.

would be the tests by which a visual impression would be tried and confusion averted, whether in the case of dream or of spectral illusion.¹

Again, one of the first traces one would expect to find of the organism's long reflex and automatic training would be an even keener sense in the primitive mind than in ours, of the incongruity of dream-events and objects.² Our range of conception has so widened that there is always a vague reservation or suspense in face of the strangest "surprises." The possibilities have so multiplied. But to our early ancestors the utter dislocation of ordinary experience in dreams would have made it difficult deliberately to accept them as fact, except so far as there was disorder of mind.³ For the more recent the emergence from the automatic level, the more inexorable the demand for the monotony of a normal sequence.⁴ Is not this in fact

meaning "not presented" but corporeal or oftener extra-corporeal." Ward, "Psych." "Encyc. Brit." pp. 37-8. "The body becomes, in fact, the earliest form of self, the first datum for our later conceptions of permanence and individuality . . ." *Ibid.*, p. 56.

¹ "From the day of our birth we have sought every hour of our lives to correct the apparent form of things, and translate it into the real form by keeping note of the way they are placed or held. In no other class of sensations does this incessant correction occur." James, "Princ. of Psych." vol. ii, pp. 262-60. See also, Fraser, "Golden Bough," vol. i, pp. 121-3; Ward, "Psych." "Encyc. Brit."

² "The fundamental note of mental insanity, as of all errors of thought and feeling, is the want or loss of a just equilibrium between the individual and his surroundings; the disorder marking a failure of adaptation in himself which is often-times a congenital fault that he owes to his forefathers." Maudsley, "Mind," No. 48, p. 510. See also p. 501. "It is experience in the largest sense of that vague term—real apprehension, feeling and acting—that gives us place among things and indeed makes these things to be for us." Adamson "Lectures," "Mind," No. 40, p. 587.

³ "As life is a condition in which an intimate correlation exists between the physical and nature, it is evident that whilst Plato dealt only with ideas of a static, fix system must remain comparatively unapproachable; but it is evident that times we have learnt to discover the laws of ideas in nature of which we are the mind are becoming, it becomes possible to find in nature an interpretation of Plato's static ideas. Once for all, it may perhaps be taken for granted that the idea of permanence never be meaningless; for the mental life is a reflection in consciousness of the continuous life of nature." Maudsley, "Theory of Vitality," p. 274. See also Spencer, "Princ. of Psych." vol. i, pp. 323, 324.

⁴ "It is in the case of the most fundamental truths in biology that the permanence of function, or in other words, the occurrence of actions of any kind in matter, tends to occasion structural changes therein. . . . We have it to do with mere reflex actions; in higher forms of life these actions are so much in complexity as to become worthy of the name 'instinctive';

and in still higher organisms we have what are called 'intelligent' actions involving perception, though always intermixed with multitudes of others belonging to the 'instinctive' and to the reflex categories." Buxton, "First Origin of Mind," pp. 23-5. See also Spencer, "Princ. of Psych." vol. i, pp. 323, 324.

of the "logical" consistencies, and others point out dangers which we could be less likely to be unclouded with that remoteness. At a later stage, parents to allow for danger find it difficult to accept a natural stage in an own development of mental power, the growth which certainly was that, what is in respect to fact? Surely the reign of the a practical attention to mastered needs, ed by the senses, and a gradual enlargement, may, never dreaming of efforts to turn somersers as ready to run.

the eye is helplessly dragged into the whirl of folly and
 ion—the point where we people nature with monsters,
le-naturalist the world we live in. We are accustomed to
 vel at the feats of dawning intellect, *e.g.*, in the use of fire
 metals, in the domestication of animals, in the making of
 weapons and tools, which we all agree in ascribing to the
 rliest times. Nay, more, we are learning further to wonder
 the high æsthetic level sometimes attained in those early
 ys. Take the case of the Cro-Magnon cave-men, whose
 awings put most of the more modern art to shame, not (as
 might have supposed likely) in freshness of fancy, but in
 siological accuracy. So with the precision in measurement
 skill in erection shown in very early examples of architec-
 ture. But here at once we are brought up short by the motive,
 the mental impetus to which these were due. Once more
 we find the rising line of mental development as it were
 effected; the upward energy begins, if not to fail entirely, at
 ast to start aside and spend itself in morbid and unfruitful
 rms. Much indeed is actual "fall," that is, reversal, degener-
 ation. For we have just been following the "cult" of the
 ving, which in fact begins where the organic itself begins.
 ow we begin to trace the undoing of all this, the "cult"
 the dead. And this, be it noted, just after we have
 gun to feel and express in a newly-acquired sense, the
 attraction of the one and the repulsion of the other. Modern
 research seems more and more to emphasize the paradox of
 aborate wastefulness, even in cases where the economical
 nt of nature might be expected to exercise a specially
 "or example, those brought forward in Mr.

Mr. "Golden Bough" and elsewhere, of unnatural treat-
 jure the future mothers of a community.
 said that here natural selection *reversed*
 d to a point where the up-growth
 and power makes for the preserv-
 le. In waste of energy and the
 death toll of disease and suffering,
 not even as might be claimed f
 a *survival of the fittest* or *survival of the fittest*
 and that *survival of the fittest* is substituted

conformity with practical principles before to take
 along a *survival of the fittest* action. Leslie Stephen, "Mind,"
 "History," "Origin and Growth of Religion," p. 63.
 Mind, and Religion," vol. II, p. 62. See also *Lessons on*
 "Theism," p. 100; *Edin. "Evangelical People,"*

One more point. We have been dwelling on the idea of the "sunder" as though it were sharp from any idea of a "god," or "gods." But of course falsify the best evidence we have and is indeed i

fact, the difficulty is to draw any definite line
ancestor, parent, hero or tyrant, chief (and later king
or

However, when it was found the connection
into the set of 1000, the set was not used.

[illegible]

[The following page contains extremely faint, illegible markings and noise.]

indeed from the dream, the shadow, the reflection, the echo, the breath. Where, then, is the missing link? Our very idea of mental and spiritual inter-communion in any exalted sense is among the latest of mental products.

But are we not betrayed even by the ambiguities of language into ascribing such ideas to the primitive sense-bound mind? Where and why do we suppose that early men broke away from the strongest ties they had—those to the actual—and where are we to look for the link which bridges the chasm between the sensuous and the non-sensuous, which in much early animism might well be spelt nonsensuous? Do not all the theories hitherto advanced really imply that the primordial mind had effaced all signs of its pre-intellectual ancestry and bequeathed to the earliest of its descendants of whom we can find traces, a practical *tabula rasa*? Do they not one and all involve the assumption that primitive men had to begin from the very beginning in their responses to environment, instead of inheriting a tendency to right reaction or correspondence ingrained in them from protoplasmic days and in the protozoic nursery, a tendency, which has but to be carried over and utilised in every fresh departure in development.

animals." Dorman, "Origin, &c.," p. 244, cf. p. 221. "That metaphorical naming may cause personification . . . we have good evidence." Spencer, "Ecclesiastical Institutions," p. 685. "Literal interpretation of metaphors leads to worship of heavenly bodies." *Ibid.*, p. 692.

The inconsistency of prevailing inferences on this and like points seems curiously exemplified in the above extracts. The first describes what is surely, on the usual premises, indisputable; the only doubt is whether the premises are sound and what further inference is justifiable. But the others apparently and credit the earliest mind with that power of consciously using the

which we usually claim for the highest culture. Did this insight, at the increasing intelligence? Was experience powerless to modify

See also Robertson Smith, "Religion of the Semites," pp. 30, 31, 83, 84, "Origin, &c.," p. 15. See also, Im Thurn, "Journ. Anthr. Inst.," 12, pp. 304, 312, 375; Kelsey, "Journ. Anthr. Inst.," February, 1882, p. 250; Max Müller, "Natural Religion," pp. 142-156; Ellis, "Early Religion," p. 101.

personification implies that the simple becomes complex or the complex simpler; it implies also that this increased complexity is due to the use of former images; we may even say that each persistence is to the very idea of development or growth. In trying, then, to as personification in the earliest stages of development we return to an experiencing a succession of absolutely new sensations, coming out of nothingness, adrift of being strung upon the thread of consciousness like beads put on at random, or cemented into a mass like

the bits of stick and sand with which the young caddis covers its nakedness. The notion, which Kant has done much to encourage, that psychical life begins with a confused manifold of sensations not only without logical but without psychological unity is one that becomes more inconceivable the more closely we consider it." Ward, "Psych." ("Theory of Presentations"), "Enquiry Brit." Im Thurn, "Journ. Anthr. Inst.," May, 1882, p. 37. See also Bonifazi, "Mental Evolution in Man," pp. 393, 399. Lloyd-Moore, "Animal Life,"

r if we could believe in such a "break
t suicidal as well as grotesque and idiotic
not merely have prevailed but have persisted
r chiefly in theory but in germ and savage pro
in becomes that out of such a settling mat
could have emerged that very sobriety of a
criticises it. But if we cannot believe in
this collapse in the face of the overwhelming
a of continuity throughout the organic ascent, then the
g force would be tremendous and the fallies would b
t out as fast as they arose. How then did we go astray
se it is not suggested that crudeness or vagueness wer
ral in the young mind of the race. Immature though
ds be both, for it certainly cannot be an elaborate
ion of an exquisite complexity. But the point is that
intelligence, instead of flying off the curves of re
ty tangents and becoming fixed therein, would in
be broadly true to nature. When we find a "restig

Ac. p. 412; Black Marry, "Handbook of Psychology," p. 50; Houghings Ac
Croonian Lect., 1894, pp. 25, 27, 29.

In a true sense, however, the psychologist who says to find
evolutionally has to begin at the top of the chain and work downwards
rather than the biologist, who at the bottom and work upwards.
Point, p. 412; Black Marry, "Handbook of Psychology," p. 50; Houghings Ac
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Croonian Lect., 1894, pp. 25, 27, 29.

gan carried on within us, like a gill-arch or a thumb-toe, we don't treat it as an analogue of the hunch-back and the squint. Even if we could not find a surviving animal which was enjoying swimming or climbing privileges denied to us poor "humans" as we now are, we should still look for their fossil remains; and even for the water and the tree which fitted such organs.¹

Is not this, then, the gist of it all?

Either (1) we are to suppose an absolute break and reversal in the evolution of mind; a stage of gratuitous incoherence in which the developing imagination has let go all the organised reactive power which up to that stage had made its owner what he was, and proceeds to create a burlesque of the universe,—

Or (2) we have, if not to assume that there is, at least to ask whether there may be in primitive cosmology and natural history an underlying element of true "mental shadow" of outward fact; an unbroken continuity of response in consciousness answering to the unbroken series of structure, function, and organic reactions; a mine, as it were, of valid suggestion, carried on within us and prompting more and more definite expression.²

If we choose the former, if the imagination can thus wholly escape from the established grip of responsive control inherited from the first, then what inference are we to make? The beast

objects, has become a mythical being among the most uncultivated tribes. "The original parent of the Comanches lives, they say, in the sun. The Chichamecs called the sun their father." The name for the sun in the language of the Salive, one of the Orinoco tribes, is, "the man of the earth above," Dorman, "Origin," &c., p. 336.

¹ "This hypothesis of subconscientness has been strangely misunderstood, and it would be hard to say at whose hands it has suffered most, those of its exponents or those of its opponents. . . . Half the difficulties in the way of its

the manifold ambiguity of the word-consciousness.

It is saying a subject is not conscious of objects that are not to say that what is presented lacks the intensity

distribution of attention to change that distribution enough. Subconscious presentations may tell on some

of mind tells on a landscape or the underlying writing, each looking either the difference of intensity or the

feature in which these definite features." Ward, "Psychology," p. 185.

and nothing of the way in which our conscious selves are made of the billions of cells of which the body of

We only know that the cells form a vast nation, some are always dying and others growing to supply their places;

and sequence of these multitudes of little lives has its own and colossal life of the man as a whole. Our part in it

is in some distant way be analogous to that of the cells, and our personalities may be the transient but constant

mental and common mind." Galton, "Human Faculties," p. 185.

"Hilbert Lectures," 1884, pp. 231, 232, 254.

—to the facts which the newer schools of psychology are collecting for us, and to recent developments of the study of language, its growth and development on the figurative and psychological side.¹

DISCUSSION.

MR. F. GALTON: Lady Welby has raised two interesting questions, the one psychological, and the other social, that do not seem to have been directly raised before, and which deserve full discussion. The first question is why barbarians, who may roughly be taken to represent men whose reasoning powers are less developed by evolution than those of the more highly civilised races, should be apparently so much more superstitious and unreasoning than mere brutes, whose order of intelligence is considerably inferior to theirs. Certainly the scientific spirit has been late in making its appearance in the human race. Lady Welby's argument is that brutes are not fanciful, but are practical, and that highly civilised men are much less fanciful than barbarians, and are much more practical; how is it, then, that barbarians are so exceedingly fanciful? Moreover, the fancies of all barbarian races seem to run along parallel lines. Totemism, animism, fetiches, are almost, if not quite, universal among them. This is a psychological question, well deserving careful discussion. Speaking with diffidence, it appeared to him that the power of reasoning at all implies a considerable evolution of the imaginative or representative power beyond the stage in which it is possessed by brutes, and further, that barbarians who possess that power and not much else, were as little competent as children are to distinguish with clearness between the subjective and the objective world. They are very apt to take fancy for fact. They look upon mental

credit the original people with a stock of religious ideas, it seems that certain rites and ceremonies of a religious kind survived a period. I must, however, confess that I think the material reserved for the inquirer of the future."

"*Primitive Antiquities of Aryan Peoples*, p. 420.

"The creative period of language, the epoch of roots

and The Origin of Language is not to be sought

in European antiquity, or in a still earlier pre-Aryan

period, as we are told by Dr. Murray, "N

ature, Vol. II, Part III. "The investigator

of growth in their current hypothesis to appreciate its

significance, and have found that a fortunate older starting

to find new paths, where the modern track seems stopped

Time, "Primitive Culture," vol. II, p. 421

i. p. 24-25. "All these facts, taken together, form unquestionable

ing of an inquiry which is destined to throw a new light into the v

our nature." James, "Princ. of Psych.," vol. I, p. 211. See i

"*Journal Anth. Inst.*" Nov. 1890, p. 118; Paul, "Princ. o

pp. xii, xiii, Mr. Galger, "Development of the Human Race,

Lloyd Morgan, "Animal Life," etc., pp. 374-6; Oudemans, "Evolution of

being," "Mind," No. 80, p. 680; A. F. Shand, "Mind," No. 80,

305, 371, 372; Ellis, "Talk-speaking Peoples," pp. 184, 185

Discussion.

superstition as equivalent to physical connection, and they base
ally enough upon these erroneous grounds, a vast superstruc-
ture of superstition. If we recollect that the barbarian is certainly
more logical than ourselves, and that we are often very illogical,
here appears no great cause of wonder at the enormous amount
and variety of superstition to which he is subject, and of which
the members of this Institute have very frequent opportunities
hearing described.

The second question raised by Lady Welby is why the super-
stitious races are not crushed out of existence by those who are
less so; why it is that natural selection fails to establish non-
superstitious varieties of barbarians in the place of superstitious
ones?

This is a question that should be answered by means of an
historical inquiry. Is it, or is it not a fact, that in conflicts
between races, those who are the most superstitious are necessarily
at a disadvantage? He was by no means sure on *a priori* grounds
that such would be found to be the case. Superstition and illusion
are great factors in national life. Among other things they feed
fanaticism, of which we have had not a little recent experience
among the Arabs in the Sudan. They encourage belief in
supernatural aid and in immunity from the weapons of the enemy.
A body of men situated in a country penetrated by such feelings as these

much might be said concerning even the course
of years, and of the present day, such as of the
Zulus and the Boers among the Red Indians
to give a few examples, and are probably most of
the kind. A number of interesting examples of the
influence of superstition on the course of events
in the history of the world, and in the history of
the human mind, are given in the paper. It is
not possible to give an account of extreme
superstition as a factor of society and of

it seemed to him that the two questions he
being raised by Lady Welby's paper, the one
the other social, were eminently deserving of
his for it.

was unable to agree with the general di-
rection (let it be) of Lady Welby's paper, or was
for the following reasons (now con-

itions of archaic societies are not a revela-
tion. What we now call degradation may
be as much in the order as anything else
relative to extinction.

(2) The argument from "survival of the fittest" is not admissible except where we know that there is effective competition. Thus, any Greek State whose armies had not troubled themselves about omens, &c., might perhaps have had a sensible advantage in the Peloponnesian War. But, as they were all about equally superstitious in this kind, their superstitions may be taken to have done one side no more harm than the other; though the scruples of Nicias (deemed excessive even then) did, in some measure, contribute to the disaster of the Sicilian expedition. In modern times experience shows that the less superstitious people, so far as there is a field of effective competition, do prevail over the more superstitious. Man, like other species, can afford to make mistakes until the conditions are realised which cause the particular mistake to become fatal or dangerous.

(3) It may be a curious and important question why archaic men should have wanted to make a theory of the universe at all. But, since they did theorise, there is nothing to wonder at in their theories being wrong. It would be much more wonderful if they had not been wrong. Our superiority is chiefly in knowing (when we do know) how far we are from complete knowledge. The belief in ancestral ghosts, &c., was a quite plausible pseudo-scientific theory in its time. We can now make it look absurd; but this is equally true of all disapproved and discredited theories. Doubtless the generic resemblance of belief and custom among widely different races is curious and deserving of enquiry; but that is not the point proposed.

(4) A tendency to right reasoning on complex facts is quite different from a tendency to right (i.e., life- or race-preserving) organic "response to stimulus," and ought not to be admitted or surmised without proof. I see no reason for assuming it.

On the whole, I fail to see that there is any paradox to be accounted for. I am likewise unable to understand the "second alternative" indicated at the end of the paper, or the sense in which the word "translation" is used.

Mr. Lewis directed the attention of the meeting to the following papers, published in the Journal of the Institute, as showing the extreme vividness and reality which dreams possessed for savages:

Rev. Canon Callaway "On Divination and Analogous Phenomena of Natives of Natal." Vol. i, p. 188.

Hearn "On the Animism of the Indians of British Guiana." 360.

Howitt "On some Australian Beliefs." Vol. xii, p. 11.

He asked whether they knew enough about the ideas of and of uncivilised men to say whether the "break" by Wally spoke of really existed, but he thought that it did know the facts they were very much what had happened they could be.

Mr. Lewis

is admitted that in the absence of the

thereas, all criticism must be discounted. He would nevertheless censure the soundness of a link in her chain of argument, viz. theory that a primitive savage might regard the benefit derived in his food as being of a "ghostly" or spiritual nature. For if we might permit ourselves to guess at the experiences and mental operations of the savage, we could not doubt, for instance, that he must have experienced times of scarcity or famine which diminished alike his own supplies and those of the surrounding animals. He must have perceived that loss of food involved loss of flesh alike to man and brute, a tangible material result which would disfavour any "ghostly" theory of nutrition. He must have further noticed that in a slight underfed condition, he was, as a rule, no match for a bigger, better fed antagonist. He would thus require no acute observation or reasoning to become persuaded of the advantage of the material substance afforded by his food. Only by an excessive stretch of imagination, could we suppose him to have regarded the benefit derived from his food, as being "ghostly" or spiritual.

As to modern beliefs in the existence of a spiritual condition being, the speaker was not sure if he correctly understood Mr. Welby's paper to assume the absurdity of all kinds of belief in spirit or ghost (Greek "Pneuma," literally "breath" or "air").

Now the field of modern science, within which the authorities raised her arguments, included not a few labourers who had

scientific work of a high order, whilst their religiousness in some form a belief in spirit, albeit such belief was a rather vague or dimly defined notion. The speaker, in his opinion, and opinion which the speaker shared, the authorities could not, with propriety, and with such a religious belief, be criticised.

It was also true that, although the speaker raised in a paper that she would like to have discussed, but she set off to one that, though modified since she heard the British Association, evidently still remained the same, the question "Is there a complete break in nature?" Mrs. Stopes did not think there was. The

of the idea of Evolution is that of a series of steps so close to each other as to be scarcely recognisable as steps, but as more general. The evolution of the mind, that proceeds in a series of steps, is not a complete break in nature, but it seems to be a complete break in nature.

Discussion.

everlasting; they, with more limited experience and less trained minds, found their external causes many, and rendered false meanings in various superstitions. They do not harmonise their thoughts, but there is the same search after translation. There is no break, but a natural development by longer or shorter paths, through a lower to a higher stage.

The Rev. EDMUND MCCLURE also took part in the discussion.

Lady WELBY has made the following observations in reply to the discussion:—

I must begin by expressing my grateful sense of the indulgent attention with which the crude effort of an untrained outsider has been received, and especially of the kind words of the President of the Meeting. I am deeply sensible at once of the gravity and difficulty of the issues raised, of their wide ultimate applications, and of my own inability to do them anything like justice. I shall be more than satisfied if I have succeeded in calling the attention of some who are better fitted to deal with them, to questions which seem to me to lie further back than any ground yet taken in the question of psycho-genesis, with reference to the primitive man's ideas about himself and the world he lives on. For instance, we accept the view that the first development of imaginative power so overcame the sense of the tangible that the early man's world became subjective, and he took fancy for fact; we are surely assuming a sudden paralysis of what, till then, had been one of the most irresistible of evolutionary factors—the inter-relation and combination of functions, incessantly modified and thus incessantly corrected by the "environment." When we think what a slave the average man is even now to any "habit" which has its roots in some physiological process, healthy or morbid, it seems inconceivable that in days when the abstracting power was still in its infancy, the imagination should have enjoyed a freedom so entirely unhampered by its recent emergence from more "automatic" conditions. Prof. Lombroso's recent plea for physiologically derived "misconception"—the primitive repudiation of the strange or new—belongs to this ground. And as to the suggestion sometimes made that animals "see apparitions" all that seems to be established is their shrinking from and showing terror at what is conspicuously alien to their experience, and thus is to

And that instinctive protest answers to why to find as a primitive bar to the growth of gratification a purely fanciful ghost-world. Sheer fright would tend to prevent the deliberate organisation of myth. Such superstition as there was negative character; certain localities were dreaded or ignored as recalling what was painful and repulsive. Again, if we admit that we had a preservative and even, in the case quoted, of the Derivatives, are the word and suggestion the

ious" were not always so ultimately baseless as
however mistaken, grotesque, or even monstrous
it? And in the question of "illusion" which, as
urges, calls for fresh and historical study and illustration,
distinguish between a primary illusion—one lurking in
the processes of "mind," and modifying all its activities

those secondary illusions which, depending on defect
interpretation (leading to mistaken inference and consequent
action), may nevertheless rest upon irrefragable fact. (7)
however, brings us to the further question: where does "illusion
proper" begin? and, what do we include under the term?)

My friend Samuel F. Ballou lays down a series of defini-
tions which are virtually able re-statements of the ordin-
ary view. (1) He maintains that early superstitions do not reverse

upward or advancing tendency. But he does not touch
question of a "cult of the dead" which I have ventured to
as itself the expression of a paradox, and which cannot be de-
scribed as necessarily a reversal; unless, indeed, he means that it
is no question of the "dead" in any such cult, but that the u-
se of the word was then, as it is now, an implicit contradiction (e.g.

the title of a recent book, "Our dead," where are the
dear ones—If dead, how dear? and why ask?) (2) Here

as yet a lack of enquiry on the basis suggested, &
must wait for an answer. (3) Here we come to a ques-
tion which is itself worth more than a mere statement.

Now, we may surely suppose that the words of all in the
world, and those of the dead, are not the same. (4) The

question of the dead, and the words of the dead, are not the same.
The words of the dead, and the words of the living, are not the same.

The words of the living, and the words of the dead, are not the same.
The words of the dead, and the words of the living, are not the same.

The words of the living, and the words of the dead, are not the same.
The words of the dead, and the words of the living, are not the same.

The words of the living, and the words of the dead, are not the same.
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The words of the living, and the words of the dead, are not the same.
The words of the dead, and the words of the living, are not the same.

The words of the living, and the words of the dead, are not the same.
The words of the dead, and the words of the living, are not the same.

The words of the living, and the words of the dead, are not the same.
The words of the dead, and the words of the living, are not the same.

enough into the secret springs of "mind" to justify them? It remains to be seen. But apart from disabilities, which no one can feel more strongly than myself, it is obvious that within the limits of a single paper, only the barest indication can be given of the scope of thought suggested, and but few out of many points even touched upon.

Mr. FRANCIS GALTON exhibited some Patterns of Finger Marks. (See page 360.)

JANUARY 13TH, 1891.

E. W. REABROOK, Esq., F.S.A., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following elections were announced:—

FRANK PEARCE, Esq., of Lake Road, Landport, Portsmouth.

L. A. WADDELL, Esq., M.B., of Darjiling, India.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

OR.—*Ethnographie de la France.* By Alph. Cassin.

FOR.—*The Convolutions of the Brain.* By Sir Arthur Keith.

LA.—By Ferdinando Borsari. *Boletín de la Ciudad de Buenos Aires*, 1887. 2 v.

BRIT.—*Folk-Lore.* Vol. i. No. 4. *Zeitschrift für Völkervergleichende Anthropologie und Ethnologie.*

MASS.—*Legislation of Massachusetts.* Forty-eight Annual Reports of the Legislature, for 1890.

PERAK.—*The Perak Government Gazette.* 2, 34.

U.S.A.—*Annual Report of the Curator of the Comparative Zoology at Harvard College for 1890.*

GERM.—*Gesellschaft der Anthropologen, Ethnologen, und Archäologen.* *Zeitschrift für Ethnologie.*

- from the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Sea
Geographical Magazine. Vol. xii. No. 1.
from the ESSEX FIELD CLUB.—The Essex Naturalist. Vol. i.
Nos. 7-9.
From the ACADEMY.—Bulletin International de l'Académie de
Sciences de Cracovie. 1890. October, November.
From the INSTITUTION.—Journal of the Royal United Service
Institution. No. 155.
From the SOCIETY.—Proceedings of the Society of Biblical Arche-
logy. Vol. xiii. Part 2.
—Proceedings of the Royal Geographical Society. Vol. i.
No. 1.
—Journal of the China Branch of the Royal Asiatic Society.
Vol. xxv.
—Journal of the Society of Arts. Nos. 1986-90.
—Bulletins de la Société d'Anthropologie de Paris. Tome xii.
1889. Fas. 4. Tome i. 1890. Fas. 1.
—Bulletins de la Société d'Anthropologie de Bruxelles. Tome
viii.
—Bulletins de la Société Impériale des Naturalistes de Moscou.
1890. No. 2.
From the EMERALD.—Nature. Nos. 1102-1106.
—Science. Nos. 407-412.
—L'Anthropologie. Tome i. No. 5.
—Revue Scientifique. Tome xlv. Nos. 25, 26. Tome xlv.
No. 1.
—Bulletin de l'Association Française pour l'Etude du
Mouvement de la Population. Tome i. No. 1-16.

Exhibition of a Specimen of the *EMERALD* and of the *REPTILIAN*
Fossils of the *EMERALD* and of the *REPTILIAN* of which the
Fossils of the *EMERALD* are formed.

By A. L. J. and J. L. Treasurers.

For more information, or to order a copy, as having some affinity
with the *EMERALD* of the *REPTILIAN* paper, a stone sent to me

white rock near Carnac, but its colour is that of steel or iron. Admiral Tremlett has found the red and yellow varieties loose or rains and near to the surface; but in the pits where they dig out clay there are quantities of it, mostly in blocks, but not a large size, and frequently found with pointed ends convenient to work with.

The peculiar markings which are found on some of the dolmens of Brittany have often been brought before our notice, especially by Admiral Tremlett, and the question has often arisen whether stone tools were hard enough to have made them, whether they must of necessity be referred to a metal-using age. Admiral Tremlett's experiment appears to show that they could have been made with stone tools.

EXHIBITION of a FIRE SYRINGE from BORNEO.

By R. BIDDULPH MARTIN, Esq., M.A.

MR. MARTIN said: The fire syringe which I have the honour of exhibiting comes from British North Borneo. It is not a good specimen of this interesting domestic appliance, but curious because these syringes are rapidly disappearing and are difficult to obtain. Mr. Beaufort, who sends it to me, tells me that he finds this in place of a better one that he hopes some day to be able to procure. They are, I believe, confined to the West coast. The better ones are made of wood: this appears to be made of lead and antimony; at the end is a notch apparently by which it is held in the hand, wherewith better to sustain it by which fire is produced. This action of producing fire is not so easy and I understand that Europeans who have many years in the country find it difficult to get the sparking fire, which a native will produce in a few minutes. A good specimen of the fire syringe was exhibited at the Exhibition, and I believe is now in the possession of Alfred Russel Wallace.

MR. F. S. A. made some remarks on the above.

MR. ADAM exhibited some specimens of worked Jade from British Columbia, and a bored stone from San Juan.

MR. DON-PARTINGTON and MR. C. HEAPS exhibited an album of the Pacific Islands.

wing Paper was read by the Author:—

*SOURCE of the JADE used for ANCIENT IMPLEMENTS
IN EUROPE and AMERICA.*

By F. W. RUDLER, F.G.S., *Hon. Sec.*, Anthr. Inst.

It is not a little remarkable that the interesting con-
jectures respecting the source of the Jade used in prehistoric
times have been freely discussed on the Continent and in America,
but have not been formally submitted to the Anthropological
Congress. As certain mineralogical discoveries within the
last few years have tended to modify considerably the character
of the subject, it has occurred to me that it might be interest-
ing to bring the subject before our members, especially
as the varieties in mineralogy are apt to escape the notice
of anthropologists.

I will at the outset to explain briefly the nature
and the difficulties. A certain mineral called
Jade is known popularly under

7 races of Europe may have brought their much-prized
 ements of jade from an Asiatic home, and handed them
 n from generation to generation; or that such implements
 have passed from tribe to tribe by way of barter, thus
 esting a very early trade-route with the Orient. In either
 the implements were invested with peculiar interest.

he interest was perhaps increased when, turning from
 e to the New World, it was found that objects wrought
 e were widely distributed among the ancient monuments
 merica. From Alaska in the North, all down the Western
 board of the Continent as far South as Peru, jade objects
 e found in greater or less abundance; and as jade had not
 it lately been recognised in the American Continent, it was
 med with great show of reason that the implements, or, if
 at the implements, at least the material of which they were
 ked, must have come either from New Zealand by way of
 islands of the Pacific, or more probably from Central Asia
 Siberia by way of Behring Strait, thus indicating early
 recourse, certainly Pre-Columbian, between the Old World
 the New.

Among those who entered into the controversy with special
 our, the first place must be assigned to the late Professor
 rich Fischer, of Freiburg-in-Baden. Advocating the exotic
 in of all European jades, he worked out his subject in its
 minute ramifications with a perseverance characteristically
 utionic, and embodied his results in a well-known work which
 as a complete repertory of references.¹ Many years ago,
 on the question was being warmly discussed, I had the
 opportunity of examining the professor's collection of jade in

University of Freiburg. It was Fischer
 anyone else, who, by his voluminous
 erence for a theory which I believe is
 orthron, although at one time it seemed
 explanation of the facts.²

theory of early intercourse with the East
 of value. In the first place the imple-
 ments are made, may not after all, be o
 a fine-grained mineral substance, po
 tly. Its physical characters are in
 enable the mineralogist in many cases |

et, nach ihren mineralogischen Eigenschaften so
 hen und ethnographischen Bedeutung." Von He
 nage, Stuttgart, 1880. 414 pp. The first edit

1 "On Jade and kindred stones" in the "Popular Science"
 1, p. 137, I gave, at the editor's request, a sketch of the st
 me.

the hardness of jadeite is rather greater than that of quartz, so that it will scratch the latter; but neither of the two is quite so hard as quartz. It is a popular error to say that jade is a very hard stone; its prominent characteristic which confers such value upon it as an implement-yielding material is not so much its hardness as its toughness—a property due to the closely-felted arrangement of the fine fibres and along of which it is generally composed. Microscopic characters are not always sufficient to separate the two kinds of jade. Dr. Schuchert has usefully pointed out that the jadeites are usually more granular or scaly-fibrous in texture, while the nephrites are uniformly fibrous and compact, a distinction sometimes detected by a hand-lens or even by the unaided eye. The distinction can be based on colour; though it may be said that jadeite is generally of a more decided green than nephrite. The only absolutely certain means of distinction is found in chemical analysis. The nephrite is a calcium and magnesium silicate, and is now universally regarded as a member of the hornblende group, the white nephrites being varieties of *garnetite* or tremolite, while the green are varieties of *actinolite*. The jadeite is found on analysis to be really an aluminium and sodium silicate, perhaps allied to nepheline.² Another mineral of dark colour and fine grained structure, often regarded as jade, was separated by Damour as a new species under the name of *chloromelanite*.³ It is distinguished by its density ranging as high as 3.4 to 3.6.

Damour, who was the first to call attention to the distinction between nephrite and jadeite, had his attention drawn to the subject by the magnificent specimens of worked jade which he saw on his way to Paris after the sacking of the Emperor of China's summer palace, Yuen-min-Yuen, at Peking. The Chinese have always been skilful workers in jade, and the different kinds of the material have probably obtained their names from different sources. Mr. Raphael in his "Geological Researches in China, Mongolia, and Tibet," a work giving the results of explorations between 1872 and 1880, refers to the occurrence of jadeite in the

¹ See his paper: "Analyse de Jade Oriental. Etude de sa composition chimique." *Annales de Chimie et Physique*, ser. III, t. 4.

² Mention may also be directed to his paper: "Sur la composition chimique de la terre trouvée dans les monuments antiques et chez les Chinois." *M. A. Damour, Comptes Rendus*, lii, 1865, pp. 111-112.

³ *Jadeite*. By E. W. Clarke and G. F. Merrill. *U. S. Geol. Surv. Bull.* vol. xi, 1888, p. 122.

"Neues Jahrbuch f. Mineralogie." 1889, II, Heft 1, p. 364.

22034
Southern Kuan, where it
of the Chinese jade appears
non-lim. Mountains, where it
similar with its occurrence i
s. v. Schlegelwall visited the
nited a valuable paper to
cademy of Sciences in Munich. As
he late Dr. Ferdinand Stoliczka, of the
nia, who was attached as naturalist to
position, described to the Geological
ancient jade quarries in the
orders of Turkestan,
white, pale green, or dark
quartz, easily worked &
exposure, as is the case with
are to occur in veins or in

ers of the quarries. The Burmese jade is jadeite, sometimes and sometimes brownish and greyish. It is thus seen jade is found in China, Turkestan, and Burma, but it is evident that Burma alone is now practically the sole source of these jade.

It is difficult to understand how jade from any of these sources found its way to Europe, but probably advocates of the trade-theory would prefer the Turkestan locality. Another source of Asiatic jade is in Siberia, but though possibly this may yield materials for transmission to Behring Strait, it is very likely that so remote a source could be utilised for the most ancient European implements. M. Alibert, whose workings for jade near Irkutsk have been successfully carried on for many years, has brought over from time to time some very fine specimens of a beautiful dark green nephrite obtained as boulders in the valleys of the Batougol Mountains, west of Irkutsk. Examples are familiar through M. Alibert's liberality, in most of the large museums in this country and on the continent.

Whichever of these Asiatic localities we turn, we are met with grave difficulties in supposing that they yielded the materials for our European implements. Some of the Swiss implements are wrought in nephrite and some in jadeite. It has been pointed out with reference to the pile dwellings that nephrite implements are rather characteristic of stations on the eastern coast (e.g., Lake Constance), and jadeite of those on the western lakes (e.g., Lake Neuchâtel). In France, jadeite predominates.

Dr. Munroe, in his admirable work on the "Lake Dwellings of Europe,"—a work which was not published when I first

estimated that in all Europe we have to do with objects in nephrite, 300 or 400 in chloromelanite. From Lake Constance considerably more than 1,000 jade implements have been found—the station of Murath—having supplied with 151 chips and sawn fragments of a length of a foot and a half to a few inches.

Following up the lead, to whom I analysed of Swiss jade implements, 1869, and with perfect fairness that I had having been derived from the local sources, he would show him the mineral in the most ancient pebbles in the drift gravels, or

should be pointed out that Dr. u detected differences in the n
signature of the Swiss implementa
libra, which are regarded as suffi
ing an Asiatic origin for these
olomon Damour has found a pebb
site at Ouchy on the Lake of G
ite, described as "green nap
Vase in Piedmont (*Ibid.* 1316

by Fischer and his follow
it is difficult to believe that
id in Europe it should ha
agency.

her smooth-faced block of
man's hand, was found at a d

long opponent of the exotic origin of European jade, has written voluminously in reply to Professor Fische, that an itinerant dealer in antiquities, who travels the country collecting from the peasants, called at 1 p.m. and sold the jade for 20 kreuzers. It is a finished pebble of triangular shape, first mistaken for a partial worked celt. The dealer, Warthol, stated that he bought it of a peasant who found it near St. Peter, about six miles north of the valley of the Sann; and Dr. Meyer on visiting it believes that the statement is correct, though he could find no other jade pebbles in the stream.

In the last few years nephrite has also been found and specimens of interest at two localities in Silesia. Heubner, of Breslau, obtained from near Jordansmühl, in Silesia, a mineral which he at first took for a hard serpentine, which turned out on chemical examination to be true nephrite. It occurs in serpentine associated with granulite, and might easily be overlooked by even a careful observer.* Having had attention thus called to the subject, Traube in 1886 found another occurrence of nephrite in Silesia, this time in serpentine at the well-known arsenical pyrites mines near Liebenstein.* It is true that objects of worked jade have not been recorded from Silesia, but the discovery of the mineral at two localities in this country, where its existence was previously unsuspected, shows that its distribution is wider than is generally supposed.

Jade implements have an extensive distribution along the Western coast of America, stretching through British Columbia and Alaska, and extending here and there some distance inland. Axes, adzes, drills, and other objects of

found in Indian graves, in old shell-heaps, &c. Dr. G. M. Dawson, assistant geologist of Canada, who has lately published the discovery of a jade pebble in the lower part of the glacial drift near the mouth of the Yukon.

The following are the principal localities in North America where jade has been found: A. B. Meyer, "Beiträge zur Kenntnis der amerikanischen Archäologie," appeared in "The American Anthropologist," a new work, "Jade and Nephrite Objects in the Museum of the Smithsonian Institution," 1883.

"Jade in British Columbia and Alaska," by G. M. Dawson, D.Sc., F.R.S., &c., 1884.

"Jade in British Columbia and Alaska," by G. M. Dawson, D.Sc., F.R.S., &c., 1884.

Storing, with the help of his brother, who was also a blacksmith, and a few other workers with whom he and John like to work on Friday and the following Sunday. Last year, he bought a few more tools.

ful study of a series of Central American
cipally from Costa Rica.¹ Among these
e, associated however with others of quartz and
d substances somewhat like jade externally. The
Mexican jades examined by those authori
ht be expected, to be jadeites. M. Boi
dealer in Paris, brought from Mexico a lar
ratchets, amulets, idols, &c., which were found
be jadeite. Mr. G. F. Kunz, of New York, possesses
be largest known axe of jadeite, said to have been
in province of Oaxaca, in Mexico, and remarkable for
human form sculptured upon it.²

ugh jadeite objects are not uncommon in collections
antiquities, and the material probably formed one
most important of the valued greenstones known to the
e *Chalchihuitls*, yet it is to be noted that no jade has
found in Mexico. At the same time some eminent
I authorities have expressed their opinion that it pri
te in the Valalta in Oaxaca. It was perhaps found
ancient workers in the form of pebbles or boulders, as
the case with jade elsewhere, and not *in situ* in the

ll-known occurrences of jade in Oceania need in
because I can hardly think that it has much import
on the question at issue. The extensive use of
or *pounamu*, by the Maories, is well known to ever
he beautiful examples of meres, tikis, adze-heads, &
e objects which grace every ethnographical cabinet. In
ally I may remark that I have occasionally exam
imens of so-called New Zealand jade, which turned o
dark green serpentine. Although true nephrite occu
small quantity along the

of the South Island, yet the ma
e much more abundant in some of the
the Maories, which is also found
in the North Island. The
The Greenstone, however,
e, is found in the same time
and went on to be argued in favour
solving the jade question in a ge
times that the known occurrences of
But within I
have been certain

a, thus proving \square the end

one of 50 exceptional students and geniuses are fine

附錄 1

I may be said that all is yet been uttered on this at present tends in my aid is for the most part the implements occur, and may or later be lifted entire

DISCUSSION

LEBOUR SAID THAT SOME YEARS AGO HE
 IN WHICH THE WINTER HATED THAT

road with
the same
direction.

ANNUAL GENERAL MEETING.

JANUARY 27TH, 1891.

MR. BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

Minutes of the last Meeting were read and signed.

CHAIRMAN declared the ballot open, and appointed Mr. ERIC PUSEY and Mr. MAURICE BEAUFORT scrutineers. The Treasurer, Mr. A. L. LEWIS, read his report for the year as follows:—

TREASURER'S REPORT FOR 1890.

A total receipts from revenue as distinguished from investments during the year 1890 have been £562 7s. 6d., being 4s. 4d. less than in 1889; in 1889, however, three donations of £21 each were received, whereas this year have been received, and this practically accounts for the difference; there has indeed also been a falling off of £9. 9s. in early subscriptions, but it is very gratifying to find this all

balanced by an increase in the sale of publications. In pursuance of the recommendation contained in the Report of the Council for 1889, and approved by the last Annual Meeting, a number of books which had been purchased and found to be of no practical value in the Library, and have produced £65. The Metropolitan Board of Works have been sold and produced £5. The total expenditure for the year 1890 has been £104, which is less than the total receipts, and the corresponding balance is now £104, which is more than in 1889; this, however, is only and nature of the matter required to any unnecessary attempt to save money.

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1. The first part of the report is a summary of the work done during the year.

2. The second part is a detailed account of the work done during the year.

3. The third part is a summary of the work done during the year.

4. The fourth part is a summary of the work done during the year.

5. The fifth part is a summary of the work done during the year.

6. The sixth part is a summary of the work done during the year.

7. The seventh part is a summary of the work done during the year.

8. The eighth part is a summary of the work done during the year.

9. The ninth part is a summary of the work done during the year.

10. The tenth part is a summary of the work done during the year.

11. The eleventh part is a summary of the work done during the year.

12. The twelfth part is a summary of the work done during the year.

13. The thirteenth part is a summary of the work done during the year.

14. The fourteenth part is a summary of the work done during the year.

15. The fifteenth part is a summary of the work done during the year.

16. The sixteenth part is a summary of the work done during the year.

17. The seventeenth part is a summary of the work done during the year.

18. The eighteenth part is a summary of the work done during the year.

19. The nineteenth part is a summary of the work done during the year.

20. The twentieth part is a summary of the work done during the year.

21. The twenty-first part is a summary of the work done during the year.

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23. The twenty-third part is a summary of the work done during the year.

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25. The twenty-fifth part is a summary of the work done during the year.

26. The twenty-sixth part is a summary of the work done during the year.

27. The twenty-seventh part is a summary of the work done during the year.

28. The twenty-eighth part is a summary of the work done during the year.

29. The twenty-ninth part is a summary of the work done during the year.

30. The thirtieth part is a summary of the work done during the year.

31. The thirty-first part is a summary of the work done during the year.

32. The thirty-second part is a summary of the work done during the year.

33. The thirty-third part is a summary of the work done during the year.

34. The thirty-fourth part is a summary of the work done during the year.

35. The thirty-fifth part is a summary of the work done during the year.

36. The thirty-sixth part is a summary of the work done during the year.

37. The thirty-seventh part is a summary of the work done during the year.

38. The thirty-eighth part is a summary of the work done during the year.

39. The thirty-ninth part is a summary of the work done during the year.

40. The fortieth part is a summary of the work done during the year.

the year four numbers of the *Journal*

1873. These contain

are illustrated by 15 plates and wood-
members have been elected during the ye-
ty; and eleven ordinary members; but on 1st
Council regrets to announce that the Institute
members by death, and that eight members have
ual subscribing member has been transferred
nders.

ring are the names of those whose deaths have been
e the last Annual Meeting —

house, elected 1881.

Richard K. Burton	"	1863 (Founder A.S.)
Cosens	"	1864 (Founder A.S.)
Harris	"	1864 (Founder A.S.)
head	"	1867
h	"	1885
	"	1869

seen that five out of the seven had been members
an twenty years, while three of them were among
rs of the Anthropological Society of London.
notices of Sir R. F. Burton, Dr. George Harris, Dr.
ead and Miss Marianne North will appear in the
Institute.

owing table the present state of the Institute, with
e number of members, is compared with its con-
e corresponding period of last year —

	Honorary.	Corresponding.	Compounders.	Ordinary.	Total.
1872	1	7	2	22	32
1873	1	7	2	12	22
1874	1	7	2	1	11
1875	1	7	2	5	15
1876	1	7	2	27	37

As a term of office having expired, the Council has
elected Dr. F. R. Taylor, who
Chair, with much advantage.

2021-2022

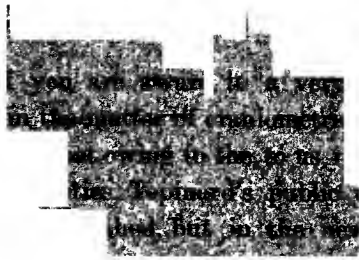
2021-2022

I am reminded by one of our
d lies open at our very doors, at
by our own Society scarcely, at a
moreover, the dictum on this subject
one of the ablest and most valuable of

it aspect of the question, although of va
interest, yet by no means covers the whole
man's nature, for in him we recognize the presence
beyond and above his animal framework."
him is himself eminently, I might perhaps
a physical anthropologist; and as one who has a
in that department, I feel all the more need
the workers in this remote and difficult
main, to come among us and help us.

at the leading anthropological societies on t
like our own, confine themselves too much to
side, to the study of the physical characteristics
of modern man, and to that of the archaeological
which is always turning up in more and more ab
We have, however, some claim to have been their fore
and leaders in these lines, and it should be our ambition
to keep abreast of our foreign friends, but to be their
"into fresh fields and pastures new."

and in their actual position we naturally turn first
to the position of the great Britons placed a century
ago. The first thing we find even then several of the
leading men of the time, and leading the now venerable
men of the time, who were already accomplished, but their
work was primarily related to the study of the human
mind, and not to the study of the human body. It was not
until the middle of the last century that the study of the
human body began to take its proper place in the hands
of the British people. Inward has been the chief
man, and in some of his papers we recognize a line
of research workers in our field. The first
man who has always



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address:
minence, a certain degree of parieto-occipital and parietal bosses well-marked, but placed so as to be immediately above the auricular meatus. The frontal aspect is a kind of lozenge. These characteristics are distinctive, and resemble those of Sir R.

in Palmyra, described by Carter Blake, and those of the crania of Zanetti from Sardinia.

He then affirms, on the strength of nearly 3,000 measurements of modern Tunisian skulls and heads, that this type now exists in the country. It is difficult to imagine that the African blood, once dominant there, can have so utterly

disappeared. This is an ethnological paper of a rare kind, and which one welcomes gladly, as a detailed account of the inhabitants of Kerassundatolia, by Aristotle Neophytos. A good description from a semi-civilised people is a rare thing.¹

There are many men of light and leading among contemporary French anthropologists, such as the Baron de Baye, who fills the place of General Pitt-Rivers among us, such as De Meuse, De Nadaillac, Lagneau, Bertillon, Collignon, every one at the head of his own department. But in Germany,

we do not forget Schaafhausen and Ranke, and Von Virchow seems to tower above everybody else much as

did in France in his own day; like him he is the founder of the leading branch of anthropology in his country.

Germany is now the centre of anthropology, inasmuch as it still retains the most vigorous power and activity, in this kind of science.

It is the centre of the country, and to some extent of the world.

More especially physical anthropology which is the basis of the prehistoric and proto-historic studies.

One of the latest works in this department, by Dr. T. W. Higginson, is a study of the crania of the Neanderthal man, and of the various stages and changes of the human skull, from the earliest to the latest. It is a very valuable work, and one of the most important in the history of the human skull.

ix (living) rises to 81. They are smaller heads than any of the other Caucasians to this point again presently.

Lucasas (Berg-juden as Von Ercker on an average of 10, a breadth in the skull they must have approached the finally very closely, more closely than testified by Von Ercker. Polish Jew and Kopernicki, average (living) an is less than that of the Poles and Ruthenians they dwell. These so-called Mountain Jews are largely the descendants of proselytes, but they would not fully account for this extent. Moreover, Von Ercker, while he finds physiognomy frequent among the other types, universally among these Jews. The types, Bedaween and Phoenicians, so far as we know, are mesocephalic. There is a mystery here

interesting craniometrical paper in the Archiv is written on the modern descendants of the Ancient Greeks. It shows that the people of the Greek nationalities, as in the neighbouring islands, are a mixture of two heterogeneous elements, one long and narrow the Tatars or foreigners and the other the Hellenes. He shows that of 179 long-headed Greeks, 78 were Tatars (under the name of Tatars) and 101 Hellenes, the former being an average of 78 and the latter of 81. On the other hand, 179 short-headed Greeks, 78 were Tatars (under the name of Tatars) and 101 Hellenes, the former being an average of 78 and the latter of 81. With these averages at hand. He shows

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they did, from their westerly
in the Francians), one may
roughly say for the Chechs were
bred with the people of middle-German

allow that the portrait of Gallia is equally
but nearly a thousand years ago the descenda
were in German eyes at least, already a dark
hat Professor Huxley, in his recent article on
question, emphasises his belief that the old Ga
of Italy and Galatia were mostly if not whol
ice. Of course there is much to be said for
the evidence of Ammianus Marcellinus
the Gauls in the fourth century is quite as
rare relating to earlier periods. Yet in
find the evidence just mentioned that a
face in the recognized national type, and that
of darkening, notwithstanding a considerable
line of the blond element, in the form of Fr
and Burgundians. Had there been a real char
Huxley seems to think? Or was it mere
mens wore a different aspect when regarded
and a blond north-

pure strains of blond com
eroded by the influen
original constitution of
the Gauls, and by their
contact with the Romans.
The evidence is
inconclusive, but the pre
dominance of the Germans
in the Gauls is hardly
doubtful.

unfavourably reviewed in "L'Anti-
social development in four
peasants, and educated

The result is that in spi-
ritual development, the four
thieves standing above the harlot
and the educated, as might have
p. It is to be noted that the educated
solic, contrary to what Schaafhausen'

work of MM. Siret and Victor Jacque
s. but, I believe, Belgians, we have h
it a long time. But the delay is to a great
ly the admirable piece of work, which has
by Dr. Telesforo de Aranzadi y Unamuno
sayans are said to be an obstinate people. The
way is perseverance, and Dr. Aranzadi is t
of men. He has produced a monogra
the Basques, small indeed in bulk, but
thorough than any similar publication wil
ted. It does not lend itself well to so

d just now give to it. All the leading phys-
ics have been fairly worked out: stature, col-
facial features, &c. The average cephalic in-
dices are those that given by Broca. There
is some of colour and stature, but the average
intelligence is about 100 centimeters (or
Aranzadi's height there is in his countrymen
well as in those of other nations, with a
little more. His work is really illustrated
and general, and has been published at
the expense of the province of Guipuzcoa
and other provinces and will
be their labour.

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not praise yet know his many
contributions.

in one of scientific congresses,
his year will see two in London,
s, the Congress of Hygiene and
tional Congress of Orientalists, of
which is an Honorary Secretary, and
unusual fulness and importance. Several
are already joined it, and I venture
my successor the Institute may
the Society has already done.

by Professor FLOWER, seconded by D
resolved.—

the thanks of the meeting be given to the
his Address, and that it be printed in the
the Institute."

MEMBERS gave in their Report, and the fo
re declared to be duly elected to serve as
for the year 1891.—

E. R. Tylor, Esq., D.C.L., F.R.S.

Esq.—L. W. Brabrook, Esq., F.S.A.; Hyde C
oller, Esq., F.S.A.

M.A., F.S.A.

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money), and of permitting the cat

and but the temporary

